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Economic Bulletin for Latin America

UNITED NATIONS

XIV, No. 2, second half of 1969

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ent developments in the Latin American integration process ■

DOCUMENTS

ECONOMIC COMMISSION FOR LATIN AMERICA

ECONOMIC BULLETIN FOR LATIN AMERICA

Volume XIV, No. 2, second half of 1969

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The Economic Bulletin for Latin America has been published by the secretariat of the Economic Commission for Latin America twice yearly since 1956. The essential purpose of this periodical is to provide a résumé of the economic situation of the region designed to supplement and bring up to date the information published in the Commission's annual economic surveys. Apart from this summary, which is to appear in every issue, special articles on different subjects related to the economy of Latin America are included, as well as informative and methodological notes.

The ECLA secretariat assumes entire responsibility for the *Bulletin*. Its content—intended for the information both of public officials and of the general reader—was not submitted to the Commission's member Governments before publication.

Since October 1958 the *Bulletin* has regularly included a Statistical Supplement. This subsequently became large enough to warrant separate publication, one issue being published in 1960, another in 1961 and two in 1962, each being bilingual with the corresponding table of contents. Since 1964, a new publication, the *Statistical Bulletin for Latin America*, has been issued twice a year, to provide the public with a regular flow of statistical data on economic matters.

EXPLANATION OF SYMBOLS

Three dots (...) indicate that data are not available or are not separately reported.

A dash (—) indicates that the amount is nil or negligible.

A minus sign (—300) indicates a deficit or a decrease.

A stroke (/) indicates a crop year or a fiscal year, e.g., 1954/55.

An asterisk (*) is used to indicate partially or totally estimated figures.

"Tons" and "dollars" are metric tons and United States dollars, respectively, unless otherwise stated.

Minor discrepancies in totals and percentages are due to rounding.

INTRODUCTION

The aim in preparing this document has been examine the difficulties encountered in Latin merican industrial development with a view defining policies, or rather economic policy uidelines, that would help to strengthen and peed up its progress in the future. All this, oreover, as part of a more general aim of ipplying the necessary background information hich, together with other factors, could lead to n economic and social development strategy r Latin America within the United Nations rogramme for the second Development Decade.

Since all aspects of industrial development re very closely linked, and it is difficult to onsider the performance of the manufacturing ector separately from that of other sectors of conomic activity, it has been thought necessary give a brief summary of the fundamental roblems and obstacles in order to make it asier to analyse the industrial development olicies that have led to the current situation nd problems of industry, and to evaluate these olicies as instruments for the attainment of asic economic and social development obectives during the coming decade.

An analysis that is confined to the industrial ector is of necessity incomplete and provisional. ecause all aspects of industry are so closely nked, this analysis can only be the first in a eries of steps through which the assumptions nd conclusions relating to the industrial sector ill have to be gradually and reciprocally rought into line with the assumptions and onclusions emerging from analyses of other spects of economic activity which are of parcular relevance to the functioning of the inustrial sector, for example, the performance of e agricultural sector, income distribution, and e anticipated trends of the external sector. his analysis of industry is therefore provisional, the sense that adjustments may be necessary make it compatible with the conclusions to e reached on the other components of a rategy for economic and social development.

Some word may be appropriate here on the pproach to industry in Latin America adopted this document. It is designed to encourage e development of new and more effective concepts for future industrial policy or for the over-all economic policies which most influence the direction of industrial development. It has necessarily had to be based on a critical appraisal of past experience showing the limitations and disadvantages of some of the policies that have been followed. However, the object of the exercise has not been to present a detailed account of the historical experience of industrial development as such in Latin America, or of industrialization policies either individually or within the historical context in which they were conceived and applied. If the method of evaluation adopted had been to determine how far the policies applied were justifiable in the historical circumstances at the time, then the conclusions of this study might well have been very different in many cases, and the picture given would probably have been less critical and pessimistic. But this is not what the secretariat had in mind. An attempt has been made to draw a picture—of necessity brief and confined to the factors that seem to constitute a common denominator among many countries in the region—of the current situation and the recent past, and to evaluate this situation and the industrial policies underlying it in terms of *future* requirements for the development of Latin America. This critical summary has not been designed as an analysis of a particular historical experience—nor would it be valid if that were its aim; its only justification is the desire to fulfil the purposes outlined above.

It is not possible to design an industrial development policy in isolation without regard for the major currents of economic and social development. Since the present document is preliminary and tentative in nature, owing to the complexity of the subject and the extremely limited amount of time available for its preparation, it has not even been possible to attempt to place it within a broader view of the prospects and policies for the economic and social development of Latin America. It therefore simply gives a rough outline of some approaches to industrial policy which it would seem appropriate to bear in mind within the context of an economic and social strategy, without claiming to provide a comprehensive and coherent picture of industrial policy or to bring the individual policies suggested into line with the more general framework of the policies that will have to be worked out subsequently. In addition, since the aims of this document are linked with the second Development Decade, the policy measures or guideliness suggested have been chosen on the basis of their feasibility during the Decade. It goes without saying that the suggestions made are still quite general in nature, owing to the great diversity present in the Latin American countries in terms of capacity for, and conceptions and levels of, industrial development.

This outline of the salient characteristics of industrial development in Latin America is therefore intended simply as a basis for discussion of the future action that will be required.

INDUSTRIAL DEVELOPMENT IN LATIN AMERICA

CHAPTER I

THE PRESENT STAGE OF INDUSTRIAL DEVELOPMENT IN LATIN AMERICA

1. SCALE OF THE MANUFACTURING SECTOR AND FEATURES OF ITS DEVELOPMENT

If the trends of the last few years are maintained, it is estimated that, by 1970, the Latin American manufacturing product will have reached a value of close to 25,500 million dollars at 1960 prices. The fact that it will constitute just under 24 per cent of the region's total gross product is a measure of its importance as a sector of production.[1]

As the industrial product represented 22 per cent of the total product in 1960 and ten years earlier had amounted to only 19 per cent, it is clear that manufacturing industry has been developing more vigorously than the rest of the regional economy during the last twenty years.

Although its development has taken place in the context of slow growth for the product as a whole, its trend contrasts favourably with that of agriculture, whose contribution to the product dwindled from over 24 per cent in 1950 to about 22 per cent in 1960 and is unlikely to be more than 20 per cent by 1970.

The industrialization coefficient for the region as a whole has varied widely from one country to another; it is now 11 to 12 per cent in Bolivia and Haiti and 34 per cent in Argentina (see table 1).

The internal structure of Latin American industry has changed radically in the course of its development over the last two decades. To give one example, the contribution of the different branches of industry to the value of aggregate industrial production has varied enormously.

As table 2 indicates, the food, beverages and tobacco industries, which represented 36 per cent of the total in 1950, saw their share shrink to 29 per cent in 1960, and it will probably drop to 26 per cent by 1970. The experience of the textile, footwear and clothing industries has been similar, if on a lesser scale: from 23 per cent in 1950 their share decreased to 17 per cent in 1960 and is expected to be roughly 13 per cent in 1970. The chemical and petroleum products industries, on the other hand, expanded their share from 10 per cent to 14 per cent between 1950 and 1960, and it is estimated that, by 1970, it will be over 17 per cent, while the contribution of the metal-transforming industries rose from 9 to 18 per cent during the same ten-year period and is expected to climb to 21 per cent over the next ten years. Basic metals and pulp and paper have also achieved increases, but on a rather more restrained scale.

Thus the sectors known as the traditional industries have been rapidly declining in importance, while the dynamic industries have been coming to the fore, although their rate of growth has been slowing down gradually over the last few years.

As far as magnitude is concerned at least, this line of development is basically determined by the trend of events in the more industrially advanced countries of the region because of the weight they carry in the total figures.[2]

The food, beverages, textiles and clothing industries, which are long-established in those countries, have lately been developing slowly in keeping with the rate of population growth, encouraged, in some cases, by external demand for traditional products or the introduction of new products. The basic metal industries, which were founded more recently, although even so they date back to 1950 or still earlier, have followed a trend that has been closer to that of

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[1] The figures given in this section are only rough estimates and in some cases differ from those presented in such ECLA documents as "*América Latina y el Simposio Internacional sobre Desarrollo Industrial*" (E/CN.12/L.34), presented at the International Symposium on Industrial Development, Athens, 29 November-10 December 1967. The differences are due to variations in the exchange rates at which national currencies have been converted into dollars.

[2] Particularly Argentina, Brazil and Mexico, which account for about 80 per cent of the industrial product.

Table 1

LATIN AMERICA: SHARE OF THE INDUSTRIAL PRODUCT IN THE TOTAL GROSS DOMESTIC PRODUCT, 1950, 1960, 1967

(*Percentages*)

Country	*1950*	*1960*	*1967*
Argentina	29.4	32.2	34.1
Bolivia	11.9	10.2	10.8
Brazil	15.1	21.4	21.6
Chile	21.2	23.7	25.8
Colombia	14.2	17.0	18.2
Costa Rica	9.5	11.1	14.0
Dominican Republic	11.9	14.0	14.6
Ecuador	15.7	15.6	16.8
El Salvador	12.0	13.6	17.2
Guatemala	10.1	10.5	12.9
Haiti	11.1	12.2	11.8
Honduras	8.4	12.1	14.8
Mexico	19.9	23.3	25.6
Nicaragua	9.4	11.1	12.3
Panama	8.2	12.8	16.0
Paraguay	19.4	17.3	18.2
Peru	14.1	16.7	19.3
Uruguay	17.3	21.2	21.0
Venezuela	8.0	10.6	13.4
TOTAL	*18.7*	*21.7*	*23.1*

SOURCE: ECLA, on the basis of country data.
[a] Excluding Cuba, Guyana, and Trinidad and Tobago for want of information.

the total product after their initial upsurge, while the metal-transforming industries made tremendous strides during the nineteen-fifties with the inauguration of the motor-vehicle industry and began to slow down in the sixties as the first flood of requirements was satisfied.

Trends in the other Latin American countries have been similar up to a point, but with different proportions and timing. For instance, in the intermediate-level countries, the basic metal trades surged forward in the nineteen-fifties, and so did the metal-transforming industries in the next decade, both from very low starting-points. In the relatively less developed countries,[3] on the other hand, new additions are still being made to the production capacity of the traditional industries while the dynamic industries have become bogged down in the early stages of development. In 1960, the food, beverages and tobacco industries were still accounting for about 45 per cent of the industrial product and textiles and clothing manufacture for 23 per cent, but these proportions are expected to decrease to 40 and 20 per cent respectively by 1970. On the other hand, the basic metal trades are virtually non-existent and the metal-transforming industries, which represented 2 per cent of the industrial product in 1960, may creep up to about 4 per cent by 1970.

Side by side with these trends, traditional artisan-type activities have been ousted by factory industry of a more modern kind, and their displacement is speeding up as the countries reach more advanced stages of development. For instance, in the last group of countries, artisan-type activities represent about 40 per cent of value added in industry and large-scale industry 29 per cent,[4] whereas the equivalent figures are 24 and 53 per cent in the more developed countries of the region.

Even if the size of the domestic market in those countries is regarded as having been a decisive factor in that respect, the same situation has obviously occurred in each of the Latin American countries, however small, under the pressure of technological progress.

The replacement of crafts by factory-type industry has been a very gradual process, however, even in the more developed countries of the region. This indicates that there are serious barriers to the introduction and widespread adoption of modern forms of production in each country.

Despite the difficulties, Latin American industry has developed sufficiently to supply a growing proportion of regional demand for manufactures. Nevertheless, there is still a wide range of products, whose importance varies in accordance with the branches of industry concerned, which are not produced in Latin America in sufficient quantity or with the right level of quality.

Imports of manufactures to supplement domestic production have risen to a value of nearly 10,000 million dollars in the last few years, with about 52 per cent corresponding to capital goods, 30 per cent to intermediate goods and the balance of 18 per cent to consumer goods.

Exports of manufactures from the region have been growing rapidly, but have not yet become really significant, since, if manufactures with a very low degree of processing (roasted coffee, washed wool and so forth) are excluded, the

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[3] Bolivia, Ecuador, Paraguay and the Central American countries, in particular.

[4] Establishments employing from 1 to 4 persons are of the artisan type, while those with 100 or more are classified as factory industry.

Table 2

LATIN AMERICA: STRUCTURE OF THE GROSS VALUE OF INDUSTRIAL PRODUCTION BY GROUPS OF INDUSTRIES, 1950, 1960 AND 1968

	Industrial group	*1950*	*1960*	*1968*[a]
20	Food	27.8	22.8	20.5
21–22	Beverages and tobacco	8.1	6.1	5.8
23	Textiles	16.6	12.2	10.0
24	Footwear and clothing	6.6	5.0	3.7
25–26	Wood and furniture	3.4	3.0	2.7
27	Paper and paper products	2.4	2.5	3.4
31–32	Chemicals and petroleum products	10.2	13.9	16.7
33	Non-metallic minerals	4.5	3.8	4.0
34	Basic metals	4.3	5.9	6.6
35–38	Metal transforming	9.4	18.6	20.7
28–30 39	Printing, rubber and miscellaneous	6.7	6.2	5.9
	TOTAL	*100.0*	*100.0*	*100.0*

SOURCE: ECLA, on the basis of country data.
[a] Estimates.

remainder will be worth less than 1,000 million dollars a year.[5] Of these exports, 85 per cent represent transactions in intra-regional trade, and only 15 per cent go to foreign markets.

The foregoing figures indicate that the *per capita* supply of manufactures in Latin America[6] must have increased from some 200 dollars in 1950 to 270 dollars in 1960, and may roughly be expected to be just over 300 dollars by 1970.

Although the last figure is a good deal higher than for Africa and Asia, it is far below the present level of the developed countries in Europe or of North America. Any attempt to close the gap between Latin America and those countries would necessitate enormous efforts on a far greater scale than any made in the last twenty years or so.

The development of the industrial sector and its trend of internal structural change have, in fact, been flagging gradually but unmistakably in the last few years. The growth rate of the gross industrial product for the region, which, in 1950-60, was as much as 6.3 per cent, dropped to 5.4 per cent between 1960 and 1968 (see table 3).

Table 3

LATIN AMERICA: GROWTH RATES OF THE TOTAL GROSS DOMESTIC PRODUCT AND OF INDUSTRIAL PRODUCT, 1940-68

(Annual cumulative rates between end years)

Period	*Growth rate of total product (1)*	*Growth rate of industrial product (2)*	*Ratio of (1) to (2)*
1940-50	5.0	6.8	1.4
1950-60	4.7	6.3	1.3
1960-68[a]	4.5	5.4	1.2

SOURCE: ECLA.
[a] Based on preliminary estimates for 1968.

Although the total product is also expanding less rapidly the fact that the growth elasticity of industry has dropped from 1.4 in the early nineteen-fifties to less than 1.2 towards the end of the sixties shows that industry has ceased to be a driving force in the Latin American economy; instead, it has simply become one of a number of sectors with no special power to galvanize the others. Moreover, the branches of industry whose development has slowed down most appreciably in the last ten years have been precisely those which had the highest growth rates at the beginning of the period—

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[5] Excluding petroleum products as well. The figures are again approximate and, in this case, have the additional drawback of a lack of clarity in the definitions of manufactures and semi-manufactures, especially when the industrial process and the primary activity are inextricably mixed in the same unit of production (metal smelting, coffee roasting, etc.).

[6] Calculated by adding the gross value of industrial production to the value of imports and then subtracting the value of exports.

basic metals, metal transforming and even chemicals. This explains the increasingly sluggish tempo of change in the internal structure of the different branches of industry.

These developments are given added significance by the fact that the regional industrial product has lost ground in the world total (dropping from 3.1 per cent in 1950 to about 2.5 per cent in 1968). This is all the more serious in that Latin America's share of the world population increased from 6.5 to 7.5 per cent during the same period.

Within the gradual devitalization of industrial growth as a whole, there are, however, quite important differences between the individual countries. In Colombia, Peru, and, above all, Mexico, the industrialization coefficient has been rising fairly steadily, and the same may be said of the Central American countries and Venezuela, although the levels attained are still very low. In Argentina, Brazil, Chile and Uruguay, on the other hand, the coefficient in 1968 was only a little higher than at some points in the nineteen-fifties, and in Bolivia, Haiti and Paraguay it has fallen below its level during that decade. It is the sum total of these trends that determines the general evolution of Latin America.[7]

This loss of momentum is of course partly due to some factors that have been consistently blocking the general development of the region, such as unfavourable terms of trade, little demand in the agricultural sector, shortcomings in the transport and electric energy systems, and specific factors in individual countries, such as natural resources and past history.

It has also been influenced by some of the characteristics of the industrial sector itself which, to one degree or another, exist in all the Latin American countries and must be modified if the region is to make greater progress in the next decade.

It would be useful therefore to spend some time on examining the factors which seem to have had the greatest impact on the development of the sector over the last few decades, namely the production methods used, their efficiency and productivity, the institutional framework of industry, sources and modes of financing, utilization of manpower and, lastly, the integration process and competition in world markets.

2. TECHNOLOGY, EFFICIENCY AND PRODUCTIVITY

The impetus built up by industry in the early stages of import substitution derived from the wide field covered by this process and the fact that the industries that were being created were able to supply requirements that already existed. As import substitution went deeper in that respect, its possibilities were increasingly limited by the fact that the manufacturing processes required became more and more complex while, as soon as the pent-up demand had been satisfied, the market for the new products moulded itself to the needs arising out of the countries' own growth. In other words, import substitution became more directly dependent on the general process of economic growth. While these observations trace the past course of industry in Latin America and explain its decline, especially in the last few years, they also indicate an area for which a number of economic policy measures should be framed, particularly in relation to the technical and operational level of manufacturing. In fact, the obstacles currently faced by industry in its attempt to introduce new products, such as the small size of the consumer market, which make it difficult to speed up the rate of industrial growth, are closely linked with certain technical characteristics of the production process. The kind of technology or the level of technological progress achieved are a decisive factor in determining whether industry is to forge ahead with import substitution and improve its competitive status by enhancing its efficiency and productivity. As import substitution was carried on under heavy tariff protection with the aim of settling balance-of-payments problems rather than of laying the foundation for a healthy and vigorous industrial sector, it is readily understood why technical problems should not have occupied the key position they have today. This change of attitude is not due to the disappearance of external sector problems. On the contrary, these problems have increased in that the structure of imports is now less elastic for the economy in general and for industry in particular, as a result of the very process of substitution, which brings new pressures to bear on imports of raw materials and intermediate goods essential for industry, and which, by altering the structure of imports, adds, in both absolute and relative terms, to the proportion of capital goods, formerly the least affected by import substitution. This trend of events is precisely one which can be dealt with only through a more technical approach to economic policy-making, since the products that must now begin to be replaced have more need of economies of scale and require production methods for which fuller and more complex technical know-how is necessary. Moreover, external savings play a major part in the manufacture of such products, and the achievement of acceptable levels of efficiency and productivity by industry largely depends on its technological resources.

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[7] No attempt is made here to describe groups of countries, but simply to indicate the different growth trends of national industry, which are dictated by a variety of situations as regards both relative degrees of development and other aspects, some of which will be analysed in subsequent chapters.

This does not mean, however, that the industrial park created in those circumstances was neutral in its effects, or that the industrial growth which took place under the spur of import substitution merely helped to solve balance-of-payments problems. There was much that was positive in that stage, which may be described as the germination of industrial activity. What must be stressed, however, is the need for industry to concentrate on consolidating the process of substitution during its next phase of growth, and to do so, it must have access to modern technology and achieve higher levels of efficiency and productivity.

These considerations, which are inspired by a general review of the situation in Latin America, are applicable to every country, although their implications and significance vary from one to another and even among the different branches of industry. Very broadly, they are more germane to the countries where industry has advanced the furthest and has a more diversified structure. Their relevance to the individual branches of industry is greatest for those in which the introduction or efficient development of such factors in terms of investment and production costs is more dependent on economies of scale, or in which technological innovations are continually being made. Cases in point are many capital and durable consumer goods industries, those producing certain basic goods and intermediate chemical products, the steel and pulp and paper industries, and the manufacture of semi-processed non-ferrous metal products, particularly of copper and aluminium.

This chapter does not pretend to deal exhaustively with the subject. It is simply concerned with indicating the broad areas in which remedial action should be taken or incentives offered, in order to establish certain criteria and guidelines for determining the policy instruments which should be used.

(a) *Technology*

Technological problems crop up in existing industry and are bound to arise in the future in the manufacture of products that are technically more complex. The nature of these problems is the same in both cases in that they relate to common aspects such as the sound selection of production processes, the assimilation and transfer of know-how, the engineering and design of processes and equipment, and technological research. Moreover, the ultimate objective of technology, which is to deploy the resources available in the most efficient way in order to produce at the lowest possible cost, is also the same in both cases. There is, however, an important distinction between existing and future industry which must be pointed out, namely, that the technological decisions to be taken for the future cannot be dissociated from present conditions in that the increase in the technical content of future manufactures must be accompanied by a corresponding rise in the technological level of industry. It is impossible to obtain really good results from technology if it is superimposed on existing characteristics and conditions. Manufacturing can of course be started in a vacuum, but such cases are the exception to the rule and can contribute little to the spread of know-how and the general improvement of the level of technology. Consequently, it is essential to analyse and understand the present situation if sound policies are to be formulated for the future.

One of the characteristics of industry in Latin America has been its close dependence on the industrialized countries in questions of technology. In view of reasons for this and the inability of the existing institutional set-up to offer industry any real incentive, it is fairly clear why there were remarkable differences in the kind of technology adopted, not only between countries and branches of industry, but also within one and the same branch. In Latin America, a whole host of branches of industry that are relatively more developed and have shown greater initiative in incorporating new techniques coexist with others that are backward and seemingly indifferent to the need to improve their production technology while enterprises that are technically more efficient and up-to-date are found side by side in the same branch of activity with others that are antiquated in both senses. Generally speaking, and with all due reservations, it may be argued that the technological differences are closely associated with the amount of market competition, the age of the industry, its sources of financing and their connexions with foreign firms, the nature of the enterprises and their business flair. Differences of the same kind also exist between countries, for the same reasons. Furthermore, the technological level of even the best-endowed firms is generally lower than in the industrialized countries.

It is difficult to assess the true scope and significance of these events owing to the fragmentary nature of the data available, and the situation has to be reconstructed from a few statistics and indirect sources of information. Table 4 brings together data on the supply of energy per person employed in selected Latin American and other countries, as a guide in interpreting the differences in production methods. This table shows, in the first place, that there is little energy available for each employed person in the different branches of Latin American industry. An exception is Venezuela, probably because its industrial sector was established more recently and the level of wages is higher than elsewhere in the region. Major differences between the Latin American and the more industrialized countries are to be found in the industries producing rubber, wood and cork, chemical products, pulp and paper, petroleum products, non-metallic minerals, basic metals, machinery, including electrical equipment, and transport equipment. In these, the degree of mechanization is nearly five times lower than in the United States and somewhat lower than in Italy, the other non-Latin-American country included in the table. The disparities are less marked in the other cases, but are nevertheless significant, and high indexes are found in some instances, e.g., the textile and clothing industry in Mexico, which has a higher index than its counterpart in the United States, and the beverages and leather industries in Colombia, which are on much the same level as the United States in that respect. However, the quality and comparability of the data preclude a more exhaustive analysis, and the only conclusions that can be drawn are the generalizations set down above.

One factor worth stressing is the rate of technological progress in the region, which can be deduced from the increases that have taken place in the supply of energy per employed person. Where such information is available, it will be seen that a greater amount of horsepower became available per person and that in some branches of industry the available supply has grown at an even higher rate than in the industrialized countries (see table 5). This applies, in particular, to beverages, tobacco, clothing, leather, and non-metallic minerals. It seems likely that the increases in the average growth rate of the energy supply per employed person have been mainly in the bigger plants.

It should be noted, however, that these growth rates, and particularly the highest, are attributable to the low initial level of mechanization in the region, or to the introduction of new industries when import substitution was at its height. In order to simplify the presentation and analysis of the data, the branches of industry have been divided into two broad groups: the traditional and the dynamic. The results are given in table 6 and figure I. They confirm the view that the increases in the region are in keeping with the degree of mechanization or the technological level of industry. Thus, the situation in Latin America is simply the corollary to this trend, in other words, the progress achieved has been on a par with their state of development. The other fact that must be stressed is that the traditional industries are more prone than the dynamic industries to reach saturation point so to speak in the utilization of energy per employed person, and may thus be responsive to technological innovations signifying sizable increases in unit investment.

From the figures in table 4 it may also be concluded that the production processes used in Latin American industry in general, and in each activity as a whole, are more labour-intensive than those employed in the industrialized countries. It should be noted, however, that, while this is statistically valid, it may be a somewhat biased presentation of the facts in that when the total number of persons employed is taken into account rather than those directly involved in production, a large number, possibly even a big proportion of the total, are simply concerned with upkeep, training, social welfare and other activities needed in the under-developed countries to compensate for the shortcomings of such facilities in the industry's immediate environment. The techniques employed will thus naturally appear more labour-intensive than if the production process were considered separately. However, as this is the prevailing situation in the developing countries, it should be borne in mind when examining the question of employment in relation to the choice of various highly capital-intensive techniques, at least until external services and supporting facilities for industry have developed sufficiently to eliminate the need for staff of the kind described in the plant. Another factor that raises the proportion of employed persons in the developing countries is the training of skilled operatives, which is often undertaken on an in-service basis in the plant itself, not merely to fill possible educational gaps but also to maintain a reserve supply of skilled labour so

Table 4

INSTALLED CAPACITY PER EMPLOYED PERSON, IN INDUSTRY

(Horsepower)

Industry	Venezuela 1961	Brazil		Colombia		Chile 1957	Mexico 1960	Paraguay		United States 1963	Italy 1961
		1950	1960	1953	1960			1953	1963		
20 Food	6.35	2.78	3.93	2.59	3.17	1.07	4.29	2.03	2.47	6.87	7.69
21 Beverages	5.51	1.89	2.58	3.14	5.02	2.31	2.43	1.87	1.24	5.68	3.91
22 Tobacco	2.50	0.57	0.96	0.33	0.86	0.46	1.40	0.25	0.52	3.83	1.23
23 Textiles	3.14	1.54	2.28	2.57	2.81	0.94	6.18	1.79	4.27	5.92	2.95
24 Clothing	0.88	0.37	0.53	0.32	0.35	0.39	1.14	0.33	0.11	0.32	0.66
25 Wood and cork	1.66	2.83	3.59	3.56	3.45	2.43	2.13	3.13	4.09	13.21	5.50
26 Furniture, etc.	4.35	1.06	1.59	1.10	1.15	0.57	1.09	2.00	1.09	3.36	3.80
27 Pulp and paper	9.83	6.40	7.11	4.63	4.07	3.16	0.86	3.00	4.81	21.21	10.66
28 Printing, etc.	2.07	0.68	0.90	0.96	0.89	1.07	3.62	0.50	0.38	1.91	1.68
29 Leather	5.93	1.89	2.63	3.08	4.07	0.67	2.56	1.20	1.28	3.83	4.02
30 Rubber	8.18	4.10	5.48	3.71	4.38	2.05	5.12	1.00	2.09	10.03	6.54
31 Chemical products	8.57	2.47		1.80	1.64	1.70	2.95	1.86	1.82	22.33	10.55
32 Petroleum products	0.01	2.47	4.71	2.63	27.47	—	19.90	—	2.67	64.38	18.94
33 Non-metallic minerals	11.24	1.31	2.52	3.90	5.52	3.54	3.79	2.63	0.96	15.18	6.31
34 Basic metals	80.80	3.42		3.77	12.00	—	3.31	—	1.85	29.55	14.76
35 Metal products	5.14	3.42	3.45	2.47	2.23	1.40	1.55	1.50	2.27	7.00	3.30
36 Machinery	9.19	1.52	2.29	2.00	2.58	0.84	3.61	—	1.40	4.56	3.71
37 Electrical equipment	2.48	1.77	1.99	0.65	1.21	2.00	0.98	—	0.42	4.56	2.00
38 Transport equipment	2.34	2.16	1.62	1.86	1.26	[a]	0.98	0.70	0.81	6.63	5.56
39 Miscellaneous	1.81	0.81	1.19	1.03	1.29	0.70	0.57	1.00	0.61	3.39	2.36
TOTAL		*2.01*	*2.89*	*2.21*	*2.94*			*1.86*	*1.80*	*9.31*	

SOURCES: United States and Italy: *The growth of world industry 1953-1965*—National tables (United Nations publication, Sales No.: 67.XVII.10). For Latin America: ECLA, on the basis of national censuses.

[a] Included in machinery.

Table 5

AVERAGE ANNUAL INCREASE IN INSTALLED CAPACITY PER EMPLOYED PERSON

(Percentages)

	Industry	*Argentina 1950-1957*	*Brazil 1950-1960*	*Colombia 1953-1960*	*Paraguay 1955-1963*	*United States 1954-1963*	*Italy 1951-1961*
20	Food	—1.1	3.5	2.9	2.5	4.2	1.1
21	Beverages	1.5	5.2	6.9	—5.0	3.4	2.2
22	Tobacco	6.8	5.4	7.0	9.6	4.0	15.6
23	Textiles	2.8	4.0	1.3	11.5	3.3	3.9
24	Clothing	3.7	3.7	1.3	—12.8	—	3.5
25	Wood and cork	0.5	2.4	—0.5	3.4	5.8	2.2
26	Furniture, etc.	—0.7	4.2	0.7	—7.3	2.1	2.8
27	Pulp and paper	8.8	1.1	—1.9	6.1	3.4	4.3
28	Printing, etc.	—0.1	2.8	—1.1	—3.4	5.2	3.4
29	Leather	6.1	3.4	4.1	0.8	—2.6	0.6
30	Rubber	4.8	2.9	2.4	9.7	3.3	2.3
31	Chemical products	0.7	6.7	—1.3	0.3	2.2	5.1
32	Petroleum products	0.5		40.0	—	6.8	11.6
33	Non-metallic minerals	8.0	6.8	5.1	—11.8	5.0	4.4
34	Basic metals	4.4	0.1	18.0	—	3.4	4.0
35	Metal products	2.2		—1.4	5.3	3.9	1.8
36	Machinery	3.2	4.2	3.7	—	1.6	2.8
37	Electrical equipment	0.5	1.2	9.3	—		0.6
38	Transport equipment	—0.4	—2.8	—5.5	1.8	2.5	5.3
39	Miscellaneous	6.2	3.9	3.3	—6.0	6.8	5.6
	TOTAL	*3.2*	*3.7*	*4.2*	*6.4*	*2.3*	*3.3*

SOURCE: As for table 4.

as to assure the continuity of the work if some operatives leave their jobs.

It is impossible to determine, on the basis of this information alone, whether the techniques used in Latin America are in keeping with the supply of capital and labour, and with the options that present themselves. Although there seems to be a growing tendency to adopt more capital-intensive processes, such trends cannot be observed in industry as a whole. Moreover, any economic and technological evaluation must allow for other aspects of the objectives and strategy of development policy. For instance, quality and cost become of prime importance if the question is how to increase the share of manufactures in foreign trade. There are of course some key activities for which the technological options should be carefully examined if an industrial policy that responds to Latin American needs is to be framed. This is particularly true of the clothing, footwear, furniture and allied industries but is not applicable to such branches as machinery, electrical equipment, transport equipment, chemicals, pulp and paper and basic metals.

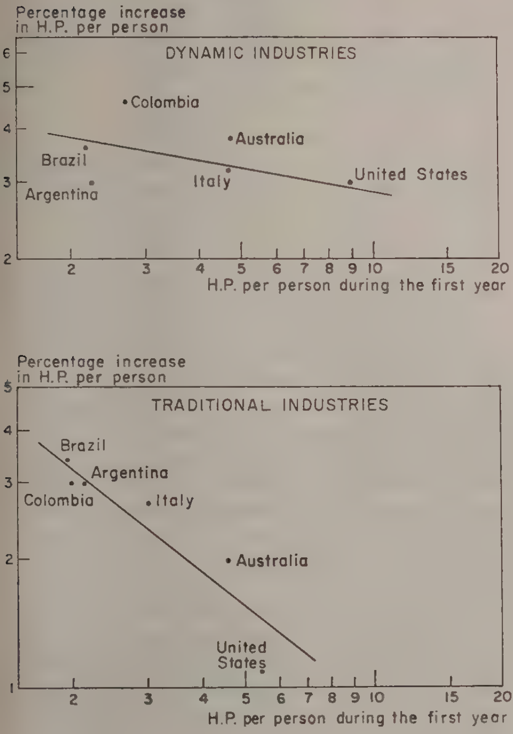
It is important to determine how far the techniques actually used have been chosen with an eye to obtaining the maximum efficiency possible in relation to existing market sizes and what has been the capital cost of the industrial park—in other words, to discover how far Latin America has taken advantage of economies of scale from a technological standpoint. Plainly, it has not done so, as numerous examples go to show. This is in fact one of the crucial problems of the industrial sector, and its causes must be discussed, however briefly.

Owing to industry's dependence on foreign technology and its development on what is essentially the basis of heavily protected domestic markets, the question of choosing techniques that are more compatible with the characteristics and resources of the region has been left in abeyance. As so little attention has been paid to it, and there are no national programmes or policies for the application of technology to industrial development, virtually the whole responsibility for selecting manufacturing processes and plant size has been left to the manufacturers themselves. This want of policy has made itself felt not only in the private entrepreneurial sector but also in government circles in relation to industrial activities that the Governments are anxious to encourage. Few de-

Figure I

RELATIONSHIP BETWEEN THE PERCENTAGE INCREASE AND HORSEPOWER (HP) PER PERSON DURING THE FIRST YEAR

(Logarithmic scale)



cisions are taken on the basis of what would be technically most advisable but are swayed by other considerations, and the resulting projects reveal serious technical, operational and economic shortcomings with the passage of time.

This situation has had a number of side-effects which are now affecting cost levels and the possibilities of accelerating industrial growth.[8] Procedures have been adopted which are unsuitable for the properties of the raw materials available, require a large amount of skilled labour, and demand standards and specifications that are hard to achieve in a developing country. Moreover, the production dimensions of the plants and equipment are designed for bigger markets and often outstrip the domestic requirements of the Latin American countries—even, in some cases, those of the region as a whole. It is perhaps in this last aspect that the maladjustments in industry have been most glaring and have led to excessive capital expenditure and under-utilization of installed capacity. There are, too, other factors, such as defects in the institutional framework, the nature of the enterprises themselves and of managerial capacity, and market shortcomings, which have aggravated the situation and whose impact has often been even more adverse than that of technological dependence. It is difficult to see just how far each of these technical and environmental elements has been instrumental in limiting the growth of Latin American industry and the achievement of greater efficiency. The scale of production is likely to be a vital issue in the basic chemical, intermediate goods and steel industries, in the production of pulp and certain kinds of paper, and in the manufacture of transport equipment and some durable consumer goods. It is interesting to note that, despite the importance of economies of scale in these branches of industry only a mere handful of the disproportionate number of enterprises operating in these fields in the region are of reasonable size according to international standards. The situation shows signs of improving, however, particularly in the petrochemical industry, where some large-scale projects are being launched to supply regional or world markets.

In other branches, however, the question of technology is bound up with the obsoleteness of the equipment used rather than with plant size. A typical case in this respect is the textile industry.

As regards local production of certain goods, particularly capital goods, dependence on foreign technology is evident not only in the manufacturing processes but in access to the blueprints and engineering know-how that go with them, whether the plants consist of single units or complete installations. In many cases, it is important for manufacturers to be fully conversant with the manufacturing processes so as to ensure that the final product meets certain fixed specifications and quality standards, and even more important for them to have the technical resources or know-how needed to use the relevant equipment efficiently. Machine-tools are a case in point, and many of the shortcomings of production in the region can be ascribed to neglect of this aspect of the question.

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[8] There are of course other non-technical reasons, proper to the enterprises themselves or external to them, which affect the levels of efficiency and productivity. They will be discussed later in this document.

Table 6

INSTALLED CAPACITY PER EMPLOYED PERSON IN TRADITIONAL AND DYNAMIC INDUSTRIES

Country	*Year*	*Industries*					
		Traditional		*Dynamic*		*Total*	
		Horse-power per employed person	*Annual percentage increase*	*Horse-power per employed person*	*Annual percentage increase*	*Horse-power per employed person*	*Annual percentage increase*
Argentina	1950	2.15	3.0	2.26	3.0	2.19	3.2
	1957	2.66		2.78		2.72	
Brazil	1950	1.94	3.4	2.17	3.6	2.01	3.7
	1960	2.73		3.12		2.89	
Colombia	1953	2.04	3.0	2.71	4.6	2.21	4.2
	1960	2.50		3.72		2.94	
Paraguay	1955	1.88	1.6	1.82	—4.4	1.86	—0.4
	1963	2.14		1.26		1.80	
Italy	1951	2.97	2.7	4.66	3.2	3.81	3.3
	1961	3.88		6.36		5.27	
Australia	1953–54	4.58	2.0	4.73	3.8	4.66	3.2
	1963–64	5.59		6.89		6.37	
United States	1954	5.42	1.1	8.83	3.0	7.60	2.3
	1963	6.00		11.56		9.31	

SOURCE: As for table 4.

The common factor that underlies all these considerations and explains the technological disparities and under-utilization of resources in Latin America compared with the industrialized countries is undoubtedly the lack of applied research in industry. Because of this, the region's natural resources have not been made full use of, other technologies have not been developed for the industrial utilization of such resources, and foreign technology is not adapted to the conditions prevailing in the region. It is generally acknowledged that the annual appropriation for scientific and technological research in Latin America is negligible in comparison with the sums spent in other areas. For instance, the funds earmarked in Latin America are less than 0.5 per cent of the gross national product as against 2 to 3 per cent in Western Europe and over 3 per cent in the United States. There are numerous reasons for the region's backwardness in this respect, all of which will have to be tackled before the gap in its industrial development can be filled. This is all the more necessary if industry is to concentrate on expanding the production or improving conditions for the manufacture of capital and intermediate goods, in which the greatest technological progress will be made, to judge by present trends.

(b) *Efficiency and productivity*

Low manpower productivity and inefficient use of capital are two of the weaknesses generally found in Latin American industry, although they differ in magnitude from one branch of industry to another. Since there is more information available on employment, the value added per person employed is often used to express industry's productivity and to compare its position with that of other regions. Thus, it has been established that the average level of Latin American industry is about one fifth as high as in the United States and approximately half as high as in the Western European countries.[9] No such comparison is possible for input of capital per unit of production, but certain piecemeal data indicate, although not categorically, that the situation is equally unfavourable.

The region's even more disadvantageous position as regards value added per person employed in industry certainly calls for an examination of its underlying causes. These comparisons are known to be subject to a number of statistical distortions (exchange rates, classification of activities, etc.), which may significantly increase or diminish the scale of this phenomenon. Nevertheless, it is possible to discern various adverse factors in existing industry which are contributing to Latin America's low manpower productivity. One is unquestionably the size of the industrial establishment. Several studies on this subject,[10] highlight the direct relationship between productivity and plant size. In the industrial sector as a whole, the value added per person employed in large-scale industry (establishments employing more than 100 workers) is two or three times as much as in small-scale industry (employing 5 to 20 persons), with medium-sized establishments somewhere between the two. In the various branches of industry, however, there are certain deviations from this trend, which may well be due to factors other than the actual size of the establishment, e.g., the degree of specialization, the horizontal or vertical integration of establishments, different characteristics and qualities of the products, etc. To explain these deviations, an analysis would have to be made at a lower level of aggregation than that provided by the statistics available. Likewise, it should be noted that the differences between the three strata of industry vary from country to country and, particularly, between one branch of industry and another, which would seem to show that it is not possible to generalize about the effect of plant size on productivity, and that this relationship varies with each product. The point to be made here, however, is that even the productivity of what is know as large-scale industry (establishments employing over 100 persons) is in general far lower than the average in industrialized countries.[11] Clearly, these variations in productivity are closely linked with the degree of capital formation of enterprises and the techniques they use. If, in addition to these two concepts, the consumption of energy per person employed is considered, it will be seen that there is a constant relationship between the growth of energy consumption and that of productivity, although it would seem that a certain expansion of capacity has resulted in smaller increases in productivity in Latin America than in the more industrialized countries.[12] The conclusion seems to be that the region's efforts in the fields of capital formation and technology have not yielded the results that might have been expected, which confirms once again that these two factors alone are not sufficient to achieve greater productive efficiency.

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[9] *Patterns of Industrial Growth, 1938-1958* (United Nations publication, Sales No.: 59.XVII.6), table 14.

From the foregoing considerations it may be inferred that in Latin American industry in general very little advantage is taken of economies of scale, even in the larger establishments.[13] Although it is difficult to generalize on the subject, it is estimated that small establishments predominate in the region,[14] and in a great many cases a country's total production is lower than what is currently considered an economic scale of production. This is particularly true of pulp and paper manufacture, steelmaking, and the production of many capital and durable consumer goods, a huge range of chemical and petrochemical products, and semiprocessed products of non-ferrous metals such as copper and aluminium. In 1964 the paper industry (excluding newsprint) had 292 plants, of which only 25 had a capacity of 100 tons daily, which is considered the minimum economic size. In the chemical industry, too, there are a great many instances in which there is a wide gap between the plant sizes most frequently found in the region and the sizes constructed in the industrialized countries, as may be seen from table 7. Needless to say, the disadvantages deriving from the scales of production are an increasingly serious problem—differing in intensity according to the product—because of the industrialized countries' evident

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[10] See, for example, *The process of industrial development in Latin America* (United Nations publication, Sales No.: 66.II.G.4), pp. 57-68.

[11] Some fragmentary data show that even comparisons between enterprises of the same size are unfavourable to the Latin American establishment. In this respect, it is worth repeating what has already been said in connexion with technology, i.e., that in these cases the lower productivity in developing countries is probably due to the inadequacy or non-existence of external services or activities, which must therefore be provided by the enterprises themselves. It may be assumed from this fact that until the environment in which industry is developing is improved, the impact of technological progress in developing countries cannot be as violent as might be thought from its adverse effect on employment levels.

[12] More research needs to be done on this hypothesis, on the basis of fuller data than are obtainable at present, i.e., on Brazil, Colombia and the United States. These countries have recorded annual increases in productivity of 2.6, 3.8 and 3.4 per cent respectively, while their installed capacity has grown by 3.7, 4.2 and 2.3 per cent.

[13] The question of scale is not necessarily dependent upon the size of the establishment, as defined by the number of persons engaged, but is associated rather with the manufacture of a specific product or a group of products with similar characteristics in so far as production techniques are concerned. Many large establishments in the region have attained that status through the gradual combination of widely diversified production lines or through a high degree of vertical integration. The advantages which may be derived from size are not technological in character.

[14] Two of the reasons for the large number of small and medium-sized establishments probably are that their size involves the smallest investment risk and is most suited to the entrepreneurial capacity existing in the region.

Table 7

ANNUAL PRODUCTION CAPACITIES FOR SELECTED PRODUCTS

(Thousand of tons)

Product	*Latin America (existing plants)*		*Industrialized countries*	
	Range of capacity	*Approximate average capacity (1965-66)*	*Economic capacity*[a]	*Maximum capacity*[b]
Sulphuric acid	5–100	40	100	700
Nitric acid	...	27	...	900[c]
Ammonia	8–132	50	200	450
Calcium carbide	4–36	23	50	300
Polyvinyl chloride	3–20	15	50	85
Polyethylene	10–30	20	20	200
Synthetic rubber (SBR)	37–70	43	...	260
Carbon black	7–33	18	15	80
Ethylene	8–54	26	150	450
Sodium carbonate	38–135	70	160	840
Methanol	12–16	13	60	190

[a] Estimated on the basis of present trends; not a strict definition.

[b] Order of magnitude; includes projects under way in 1968.

[c] Three units with a daily capacity of 900 tons each (PULAWY, Poland).

tendency to increase the size of their plants as they achieve further technological progress.

The question of scale not only affects productivity levels, but also, and very particularly, the capital economy, i.e., investment per physical unit of production. Although here too a great many cases could be cited, the paper industry is once again taken as an example. The investment per ton in a bleached pulp plant with a daily capacity of 300 tons is nearly 50 per cent less than that required for a plant with a daily capacity of 50 tons; the difference is 30 per cent between integrated pulp and paper mills with capacities of 50 and 100 tons daily.

Productivity improvements in certain sectors of manufacturing are more closely linked to the degree of obsolescence of the machinery in use than to plant size. The textile industry is a typical case in which increases in productivity depend more on the modernization of the machinery park than on plant size.

Other aspects of Latin American industry which are obstructing the achievement of greater productivity are evidently the institutional factors referred to later in this chapter. On this point, suffice it to say here that in some sectors of industry improvements in entrepreneurial levels and organizational methods may well constitute the prime factor in raising manpower productivity.

Another factor alluded to earlier is the poor use made of capital in Latin American industry, which is reflected in the under-utilization of installed capacity. Here again it is extremely difficult to demonstrate this from the statistics, quite apart from the fact that the concepts of what really constitutes the capacity of an industrial establishment vary widely.

Nevertheless, there are some scattered data which bear out the existence of this anomaly in some branches of industry. In the manufacture of certain capital goods, particularly equipment for the basic industries (oil refining, electric energy generation, steelmaking, shipbuilding, and the production of railway equipment, cement, etc.), and the manufacture of machine-tools, the existence of substantial surplus capacity in relation to foreseeable demand has been proved in countries like Argentina and Brazil, and on a lesser scale in Chile and Colombia (in the last two countries mainly in respect of articles used in working boiler-plate). Without going into the sharp fluctuations characterizing the demand for this type of product or the differences that may exist between the nature and quality of the products manufactured locally and those required by the market, it has been determined that the factor mainly responsible for this state of affairs is the manufacturers' ignorance of the existence of a demand for their products, and the users' ignorance of the real capacity of the established industry. Perhaps the prime factor aggravating the under-utilization of capacity in the manufacture of capital goods, however, is the general lack of financing in the region; because of the practice of long-term sales and the allocation of orders for this type of equipment through international bids, the local producer is completely excluded since he is unable to grant credit on the advantageous terms usually offered by suppliers in industrialized countries. The under-utilization of capacity is also partly due to the fact that some of the production equipment which is essential for the manufacture of these goods must be acquired as a whole unit.

This last point is particularly important in steelmaking, where it causes serious disequilibria between the various departments of the steel mill. In this type of industry the most costly units, and also those which, because of their part in the production cycle, must not be halted in the event of expansion, are frequently over-sized. As a result, in the initial stages of operation part of the equipment (the over-sized part) operates at a fraction of its capacity. For instance, in the group of seventeen integrated steel plants in the region, the installed capacity of the blooming mills was 48 per cent larger than the output of these plants in 1966. Only four plants utilized more than 80 per cent of their blooming capacity that year, while nine used less than 51 per cent.

In other branches of industry, such as pulp and paper, the under-utilization of capacity has distinguishing features of another kind. According to data for 1964, which are probably much the same as those for the following years, the region utilized 71 per cent of its installed production capacity in the case of paper and 68 per cent in that of pulp. The situation varies from country to country, and some—such as Chile and Peru—utilize nearly 95 per cent of their installed capacity. It should be noted, however, that in the paper industry the lowest utilization of capacity is recorded precisely in the smallest plants (with a capacity of less than 30 tons a day), which constitute over 75 per cent of the existing establishments but represent less than one third of total installed capacity. It would seem, therefore, that in the paper industry the capacity that could be recovered is nominal rather than real, since it is available in relatively small establishments which are far from efficient.

The situation in the chemical sector varies considerably, but in general nominal production capacity does not appear to be fully used. This may be a temporary state of affairs only, however, as a number of items are in the early stages of production, many new plants are therefore just being put into operation, and the plant sizes have been selected with an eye to a rapid expansion of demand.

While there is obviously under-utilization of installed capacity, the true extent of this idle capacity and its significance for the region as a whole cannot be fully determined from the available facts. Moreover, capacity is a dynamic concept that changes over time as technology advances. What is available today may thus be more apparent than real since the threat of technological obsolescence hangs over not only the production equipment but the way in which it is utilized to manufacture the products required by the markets of the future.

The set of factors described above—technological level, low labour productivity and poor capital utilization—have unquestionably raised production costs and hence the sales price of Latin American goods. There is an impression, which has moreover gained wide currency, that the prices of Latin American manufactures are much higher than those of goods produced in the industrialized countries, although the information that can be gathered together is not reliable enough for calculating the full force and causes of the problem. The problem is extremely complex to analyse, and it is difficult to make generalizations that are valid for every country and branch of industry. The need to use exchange rates for purposes of comparison introduces a highly unstable element, since over- or under-valuation may completely change the figures in the comparisons and thus the conclusions to be drawn from them.

The weakness in Latin America's industrial development can only be appreciated through price levels, which indicate that production costs are beset by the same problems, although there is not necessarily a direct correlation between the two. To illustrate this, some examples will be given of price disparities between the region and normal world market quotations. These should of course be accepted with all due caution as being simply a basis for comparison. In the chemical industries, the prices for a representative group of basic intermediate goods produced in Latin America in 1965-66 were 50 to 300 per cent higher than the list prices on the United States market or the European average. In paper manufacture too, the prices in the region as a whole are far higher (14 to

240 per cent more) than on the world market, the norm being about 60 per cent higher.

Besides the part played by the factors relating to technology and the efficiency with which the region uses its capital and labour resources, there is yet another factor that is basically responsible for the high level of prices. This is the heavy cost of raw materials, including semi-manufactures and spare parts, which account for a large proportion of the costs. In an earlier ECLA study,[15] which compared certain facets of the cost structure in the light of the findings of a survey of United States enterprises operating both at home and abroad,[16] it was pointed out that raw materials represented 49 per cent of total costs. The views put forward at that time are still valid today, since the same situation has been found to exist up to a point at least, by more recent sectoral studies, such as the textile industry report, which puts the incidence of raw materials on total production costs as 41 to 62 per cent. This study also pointed out that the raw materials cost 142 per cent more in Latin America than in the United States. In the chemical industry, for instance, there are many electrolytic units that pay over 15 dollars per ton for salt, instead of the 5 to 7 dollars which is regarded as a reasonable price outside the region. The same applies to sulphur in most of the Latin American countries. The situation is less unfavourable for semi-manufactures, since the price of steel bars is slightly lower in at least two countries than in the United States although it is 6 to 17 per cent higher than in Europe. Prices for steel sheet are 10 to 44 per cent higher than in the United States, and the lowest in the region exceed European prices by 7 to 20 per cent. Imported raw materials are more expensive in the region because of the transport and marketing costs, customs duties and so forth which have to be added to the price ex country of origin.

Unit labour costs are possibly the only item for which Latin America's position is a good deal better than that of the highly industrialized countries. The share of labour costs in total costs is usually small, and as the hourly rates are lower they do not have much influence on the total. It must be made quite clear, however, that this comparative advantage is partly wiped out by the lower level of labour productivity.

Lastly, investment costs are another unfavourable item for Latin America, not only because investment in plant is higher than abroad, but also because of capital costs, the scale of operations and under-utilization of installed capacity. The experience of several Latin American countries goes to show that the volume of investment required for an industrial plan, including the infrastructure, is 30 to 40 per cent higher than for a plant of equivalent efficiency and size outside the region. Owing to high rates of interest, capital charges also add to production costs. In the chemical industry, for example, the financial charges borne by an enterprise are at least 13 per cent higher than in other areas, with the result that the final costs are raised by 2.5 to 5 per cent. The scale of operations is a particularly important factor in such branches as petrochemicals and basic chemicals, steelmaking, and the production of semi-finished copper, aluminium, pulp and paper and similar products, whose manufacturing and investment costs are strongly influenced by it. Suffice it to say, for purposes of illustration, that capital charges in the pulp and paper industry for unbleached eucalypt pulp processing were slashed nearly 56 per cent by changing over from a plant size of 50 tons a day to one of 200 tons a day. In the case of integrated pulp and paper mills using the same type of pulp, the switch from one size to another reduced the charges by almost 49 per cent.

3. INSTITUTIONAL FRAMEWORK AND FINANCING

(a) *Characteristics of the enterprise*

Small production units predominate in Latin American industry. Available data show that artisan-type industry, defined as the stratum of enterprises employing from one to four workers, accounts for 70 to 90 per cent of all industrial establishments. Moreover, in factory industry, enterprises employing from 5 to 19 workers represent about 70 per cent of the total number of manufacturing establishments in Brazil, Chile and Colombia, and over 80 per cent in Paraguay and Venezuela. In contrast, industries employing 100 workers and over represent about 6 per cent of the manufacturing establishments in the first three countries and only 2 per cent in the other two.

Thus, Latin American industry is a collection of many small units contributing relatively little to production and a few large-scale production units whose contribution is considerable. Although the lower stratum of factory industry comprises many more enterprises, it contributes only 10 per cent of the value added in manufacturing in Brazil, Chile and Colombia, and 20 per cent in Paraguay and Venezuela, whereas large-scale industry accounts for 70 and 50 per cent, respectively, in those two groups of countries. This is clear from table 8, which shows the share of large-scale industry in manufacturing.

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[15] ECLA, "*Problemas y perspectivas del desarrollo industrial en Latinoamérica*" (E.CN.12/664).

[16] *Costs and competition: American experience abroad,* The National Industrial Conference Board (New York, 1961).

This situation is due, among other things, to the nature of the enterprises and their methods of production. At the artisan-type level and that of a large part of small and medium-scale industry, production units are mostly of the family type, organized around the person or persons who provided the initial capital and their own labour. In these units, the work of organization and management and the basic technical responsibility are concentrated in the hands of the small entrepreneur, who seldom has the knowledge, experience or staff to cope efficiently with administrative and financial problems. In addition, he uses traditional production processes and low-cost equipment which is either poor in quality or has been discarded by larger industries because it was considered obsolete or nearly worn out.

In contrast, the large-scale industries are generally organized in the form of corporations and therefore have easy access to the stock market; their organization and production techniques are also more up to date, often because they use foreign patents and work with foreign capital. Even so, many of these units still show signs of the family type of control and management, since their organization is extremely inflexible as a result of the excessive concentration of decision-making powers in the hands of a small group of responsible persons.

As a direct consequence of these characteristics most enterprises have gaps in their internal structure. They lack research and planning offices; decisions regarding markets and new products are based on the entrepreneur's direct experience without prior investigation, controls are aimed more at preventing the misuse of funds than at improving productivity, etc. These defects are the outcome of lack of sound training among the managerial staff, who with few exceptions, do not yet recognize management as a modern technique requiring special training.

In nearly all the countries of the region the large- and medium-scale entrepreneurs at least have formed manufacturers' associations through which they maintain some form of contact and exchange information to safeguard their business interests. In the more industrialized countries entrepreneurial organizations also exist for branches of industry—in many cases the metallurgical industry, the chemical industry, etc. and for geographical areas—and they operate in co-ordination with the central associations. Small manufacturers and artisan-type workers are not usually members of these organizations, and what links they have are mainly through co-operatives, an arrangement which has been encouraged in recent years by government plans to promote small-scale industry and establish industrial estates.

Table 8

SELECTED LATIN AMERICAN COUNTRIES AND THE UNITED STATES: SHARE OF LARGE-SCALE INDUSTRY[a] IN MANUFACTURING

(Percentages)

	Total number of factories	*Share of employment in in manufacturing*	*Value added in manufacturing*	*Installed capacity*
Brazil	6.5	61.1	68.0	69.6
Central America	4.6	37.1	48.2	47.2[b]
Chile	6.3	57.2	68.8	71.4
Colombia	6.0	54.0	70.6	73.9
Mexico	13.3	67.5	76.5	85.6[b]
Paraguay	1.9	29.6	48.6	44.0
Venezuela	2.6	37.2	59.5	77.0
United States	14.8	75.5	79.4	86.0

SOURCE: ECLA, on the basis of official censuses and surveys.

[a] Establishments employing more than 100 workers.

[b] Power consumed.

Large-scale industrial enterprises are also frequently associated with private financing agencies and with commercial and other types of enterprise, and they form groups with diversified activities but common financial interests. Although this facilitates the transfer of resources between sectors, it represents limitations for the entrepreneurs not belonging to those groups, who are far more numerous.

There is a network of government bodies and legal provisions which, on the one hand, impose limits on the activities of industrial entrepreneurs and, on the other, provide various forms of help and incentives. Responsibility for the application of administrative provisions requiring enterprises to be on the industrial and property registers, to comply with regulations, etc. lies with the ministries of industry or their subordinate bodies. Development activities are concentrated mainly in large corporations or industrial or general development banks, which normally provide financing and, in some cases, technical assistance, particularly in the preparation of projects. Any programming that is done is carried out by national planning offices or by sectoral offices set up in the relevant ministries.

As will be seen later, although government action has not succeeded in overcoming the many obstacles to a more rapid and sustained growth of industry, it has provided a fairly clear-cut, if not always stable, framework for industrial enterprises.

Despite the fact that they are outside the enterprise itself, certain infrastructure conditions have also acted as determinants of some of the important characteristics of the manufacturing sector. For example, the inadequacy of transport services has raised costs and prices and, in the past, has made for widespread dispersion of the production of consumer goods by small units supplying fairly limited areas in each country. On the other hand, the concentration of financial services and of government administrative services in the major urban centres has led to a geographical concentration of industrial enterprises, which in some cases is already excessive. Regional planning efforts have been few and far between and have done little to alter this situation.

(b) *Financing of industry*

The financing conditions for Latin American industry[17] should be analysed in relation to the framework in which such financing operates, which is characterized by comparatively low average *per capita* income levels, with marked disparities between countries, and patterns of highly unequal income distribution among the different population groups. These conditions determine a low *per capita* consumption of manufactured products, while in many cases limiting the possibility of producing them in the various countries on an economically justifiable scale, and also leave little room for personal saving.

Within this very general context, the essential characteristics of the enterprise which are described above largely determine its internal capacity to generate investment funds.

The small production units, most of which have out-of-date unsuitable equipment, unskilled manpower, under-utilized capacity and a small output, have been able to survive largely because of high tariff protection. Their profit margins have therefore been too low, as a rule, to allow of the rapid capital formation that would make for steady growth; expansion has also been hindered by the limitations of entrepreneurial capacity that are typical of the early stages of industrialization in which these enterprises developed.

The medium- and large-scale enterprises, whose levels of production and productivity have been higher under the same protective conditions, have either failed to generate sufficient funds or have not always used them to expand and modernize their establishments, but have diverted them into other types of investment, often in activities which are quite unrelated to the industry which originally generated the funds, or else, in the case of foreign or joint national and foreign enterprises, a substantial proportion of those funds has been remitted abroad.

As a result of these factors, the reinvestment of profits in industrial enterprises in Latin America, and often the allocation of funds for replacement purposes, have been insufficient, and some legal provisions have been adopted in this connexion. With few exceptions, the tax measures designed to facilitate replacement and reinvestment do not appear so far to have had much influence on the decisions taken by enterprises.

In view of the inadequacy of self-financing, the enterprises have resorted to other sources of funds outside their own activities, but these have not proved too satisfactory either. The stock market in most of the Latin American countries is not well developed, and even where it exists, its operation is not very dynamic, except in Mexico.

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[17] The comments in this section are not, in general, applicable to Cuba.

The lack of activity on the stock markets is largely due to the family nature of the enterprises, which is observable, as has already been said, even in many large-scale units. In these cases, capital is contributed directly without reçourse to the stock market, except on a limited scale, to avoid any weakening of the control exercised by the central family group. Even companies which are floated with more capital from personal savings, through the public sale of shares, engage in some management practices which inhibit the growth of the stock market. These companies are controlled by small groups of shareholders holding a high proportion of the stock and they decide the policy of the enterprise or group of enterprises they control and obtain special advantages from them, such as director's fees, etc., while the small shareholder usually has no say in the management of the enterprise, and no chance of receiving any immediate profits, or even of recovering the real value of his initial contribution.

Accordingly, the flow of personal savings goes into other forms of investment which may be less productive but are often safer and easier to realize.

The resources obtained through credit mechanisms have also been severely limited. The traditional banking system has never been in a position to supply credit on a scale and under the conditions of repayment and interest rates which industrial enterprises require. Although short-term credit for financing the operation of enterprises has in general sufficed, problems have arisen in connexion with financing stocks of finished products, and with the terms granted for credit sales, particularly when the final product has a high unit value and the manufacturing process is slow.

The most serious limitations are encountered in the supply of medium- and long-term credit for investment. In many cases commercial banks lack the necessary flexibility or even the legal authorization to grant this type of loan, and government development agencies generally have few resources for investment purposes.

In view of the persistent demand for medium- and long-term credit and its constant diversion into other types of operations, especially the purchase of real estate, a number of private financial enterprises have been set up in several countries over the past few years. They have greater freedom of action as regards amortization periods but have appreciably raised the cost of the credit they supply.

Furthermore, in some cases, special government funds have been established and are operated through the network of private banks and financial associations, their operations being both rapid and broad in scope.

In countries affected by persistent inflation, various types of adjustments or corrective monetary measures have been introduced to facilitate long-term saving so that it can supply some form of credit that can be used in part by industry.

In spite of the efforts described above, the financing of industry supplied by internal credit mechanisms has not been satisfactory, either in volume or in the terms offered.

To supplement the supply of credit, it has been possible to obtain a sizable, but still insufficient volume of external credit, which, while increasing the funds available, also involves some limitations. Suppliers' credit tends to add to the price of the products purchased, thereby raising domestic production costs. Frequently official bilateral credit, and sometimes multilateral credit, take the form of tied aid, and this "restricts the developing countries' opportunities of benefiting from the price and quality advantages which normally accrue from a free choice of suppliers . . . Further, tying tends to reduce the real value of aid inasmuch as the definition and the choice of projects and of technology best suited to the requirements of the developing countries is limited".[18]

In addition, the general trend in the second half of the nineteen-sixties has been towards a rise in the cost of obtaining external credit, whether public or private.

The proportion of these resources obtained from international institutions and public agencies in developed countries shows a declining trend; however, they have gradually been supplemented by funds from private commercial banks and financial associations abroad, which provide a relatively small but increasing volume of credit.

The Inter-American Development Bank stands out among the international agencies both because of the funds it has contributed for industry and because it has been quick to discern the region's pressing requirements. In the last few years IDB has financed over-all rather than direct loans. Although the former give the national body in charge of these funds more freedom to distribute them among specific industrial projects according to an over-all view of development possibilities, in practice they have not always yielded the best results, because the actual procedure for applying the funds does not help to link them with specific industrial development objectives.

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[18] See *Report of the United Nations Conference on Trade and Development on its second session* (TD/L.37) (18 April 1968), annex I, decision 29 (II).

In the next few years, any effort to revitalize the industrialization process in Latin America will require more external financial resources, but the excessive medium-term indebtedness of most Latin American countries makes the prospects of securing substantial additional external credit even more gloomy.

Moreover, the inflow of private foreign capital in the form of direct investment, whether independently or in association with national enterprises, while constituting a contribution of capital and often of technical know-how, represents excessively stiff competition for national investors, who have gradually been displaced from those industrial activities that offer the best financial prospects. Thus, the initial capital contribution usually severely limits the ultimate possibility of capital formation by national entrepreneurs.

Similarly, the growing tendency of foreign investors in recent years to purchase all or part of industrial enterprises that are already operating in Latin America, far from providing a stimulus to industrial activities in the region, entails an increasing outflow of financial resources, without the creation of new production capacity to justify it.

The efforts being made in the last few years to achieve a higher degree of regional economic integration highlight the important effect this is bound to have on the development of production units that take advantage of economies of scale and attain productivity levels comparable to those of developed countries. The necessity is also stressed, however, of paying close attention to the problems of reconverting industries which may be displaced in the course of this process. These problems may well become proportionally more serious in Latin America than in other areas advancing towards integration, in view of the huge number of artisan-type producers with low levels of productivity who might be eliminated as a result of competition from a group of efficient up-to-date medium- and large-scale enterprises, once the tariff barriers between countries in the region were abolished.

Furthermore, the practical possibility of reorienting the whole process of industrial development in Latin America, based more and more on an increasing flow of intra- and extra-regional exports, largely depends upon the availability of additional financial resources, not only to expand and modernize production capacity, but also to reinforce export credit programmes and the related insurance schemes.

4. Employment and manpower problems

Employment in manufacturing in Latin America has been growing slowly over the past twenty years. From 7.7 million workers in 1950 it rose to 9.8 million in 1960 and, if present trends continue it is expected to reach over 12 million by 1970. This means that the cumulative annual rate of growth declined from about 2.4 to 2.1 per cent between the two decades.

As a result of this sluggish growth, manufacturing employment has maintained a slightly declining share of total employment, i.e., just over 14 per cent. Compared with the definite decline in agricultural employment as a percentage of the total, the industrial sector has remained relatively static, without doing much to absorb the redundant manpower in agriculture, which has gravitated towards the tertiary sector.

Thus, manufacturing has absorbed only some 3.8 million persons out of the 30 million who joined the ranks of the active population between 1950 and 1968, in other words, about 13 per cent of that total.

In analysing this lack of dynamism, however, it should be taken into account that the share of artisan-type industry in total employment has shrunk most rapidly; from 7.5 per cent in 1950 it decreased to 6.8 per cent in 1960, and is expected to be only 6 per cent in 1970. In contrast, the factory stratum has increased its participation from 6.9 to 7.5 per cent from 1950 to 1960 and is expected to reach 8 per cent by 1970.

These figures appear to indicate that the growth of factory employment is largely attributable to the absorption of manpower from the artisan stratum, which holds out no possibilities for the creation of new employment at the same rate as the growth of the total active population.

Although this may be an essential feature of industrialization, its quantitative results are unsatisfactory as regards both the utilization of human productive resources, and its contribution to the attainment of a progressively higher level of social well-being.

Admittedly, at least part of the explanation of this trend may be found in the evolution of industrial production as regards its distribution by branches of industry. As stated previously, the output of the food, textile, footwear, clothing and traditional industries in general which are labour-intensive, has been growing relatively slowly, while the chemical, petroleum and petroleum products, and basic metal industries have absorbed an increasing proportion of the new production capacities and have therefore expanded more rapidly in terms of both production value and employment, although they have fewer workers per unit of production.

In addition, the tendency to set up larger establishments, as a result of the abovementioned possibilities of capital formation attendant upon the expansion of markets and the rising level of internal development in the Latin American countries, has made for the assimilation of up-to-date production techniques in practically isolated large-scale units, without those techniques spreading to the smaller-scale establishments even in the same branches of industry in which the large-scale units are operating.

The fact that in 1960 about 60 per cent of employment in the traditional branches of industry was concentrated in artisan-type industry, compared with only 35 per cent of employment in the chemical and metal-transforming industries, shows that any change in the structure of the sector that implies a reduction in the share of the traditional industries will inevitably result, under present conditions, in a slower increase in industrial employment.

Although the effect of the evolution towards the dynamic branches of industry is the prime factor underlying the industrial sector's slow absorption of manpower, another factor which should not be overlooked is that the production techniques utilized have not always been the most suitable from the standpoint of the existing supply of productive resources in Latin America. This is explained, first, by the tendency to take over, lock, stock, and barrel, the techniques developed by the industrial countries which "export" them together with the equipment specifically designed for them, and, secondly, by the fact that no thought has been given to other alternatives adapted to the particular conditions prevailing in the Latin American countries. Thus, the capital available in these countries has been used without obtaining the highest possible rates of employment of human resources that would be compatible with high productivity levels. Another contributory factor has been the lack of social objectives in the industrial policies adopted.

These are some of the conditions which, together with the general shortage of financial resources, have determined the slow absorption of manpower by industry.

In addition to the quantitative problems arising in relation to manpower, it is worth while analysing other aspects relating to the occupational categories in industry and their level of professional training.

Thus, for example, the existence of a broad artisan stratum is reflected in the high proportion of own-account and family workers (paid or unpaid) in the total population employed in manufacturing industry. Whereas in developed countries in other parts of the world this type of worker represents not more than 8 per cent of the total,[19] the proportion is generally over 20 per cent, in the Latin American countries and in some—Ecuador, Haiti and Peru—it is nearly 50 per cent, as shown in table 9. These own-account and family workers, who are neither entrepreneurs nor wage-earners, are generally cut off from technical progress, and produce simply processed products on a small scale, using primitive or outmoded techniques, at a very low level of productivity.

Moreover, industrial manpower training reveals considerable gaps in relation to industrial development requirements. Only 0.4 per cent of the population engaged in industry have had professional training, and only 1.2 per cent are technicians, while 87 per cent are operatives and manual workers. In this category, 30 per cent have had no training at all and 50 per cent have had insufficient training.

This situation reflects deep-rooted problems related to the inadequacy of basic, technical and professional education in the region, which affects all sectors of activity; but it must also be recognized that, at least at the professional and technical level, there is one factor which depends exclusively on the industrial sector. This is its inability or lack of any desire to attract this type of worker, as shown by the small share of the total number of available professionals and technicians who are employed in industry—8 per cent of the former and less than 7 per cent of the latter—while 76 and

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[19] Two per cent in the Netherlands, 3 per cent in Iceland, 5 per cent in Sweden, and 8 per cent in France.

Table 9

SELECTED LATIN AMERICAN COUNTRIES: DISTRIBUTION OF THE LABOUR FORCE IN INDUSTRY, BY OCCUPATIONAL CATEGORY, 1965

(Percentages of total population employed in industry)

Country	*Employers*	*Own-account and family workers*	*Wage-earners*	*Other workers, not specified*	*Total*
Argentina	10.7	14.2	75.1	—	100
Brazil	2.7	10.4	86.9	—	100
Chile	1.9	22.0	76.1	—	100
Colombia	5.2	28.1	65.7	1.0	100
Costa Rica	3.7	22.2	71.3	2.8	100
Dominican Republic	1.3	32.5	66.2	—	100
Ecuador	2.1	49.6	47.6	0.7	100
El Salvador	3.1	29.1	65.6	—	100
Haiti	1.9	41.0	56.9	0.2	100
Mexico	1.4	17.1	81.5	—	100
Panama	3.7	26.6	69.7	—	100
Peru	1.9	44.4	53.5	—	100
Uruguay	6.9	18.9	73.5	—	100
Venezuela	3.5	28.5	67.6	—	100

Source: ECLA, on the basis of data supplied by the various countries.

85 per cent respectively are concentrated in servicing jobs (see table 10).

In the face of Latin American industry's scant ability to retain human resources, there has been a growing tendency in the developed countries, particularly the United States, to absorb professionals, technicians and scientific workers from the less developed countries, who are attacted by better pay and a field of action that is richer in technical possibilities. This has still further reduced the supply of highly trained personnel.

Where the problem becomes really critical, however, is in the employment of intermediate-level workers and technicians.

Although, in the last few years some countries have introduced new professional training services[20] which focus attention on training adult manpower, in addition to the traditional industrial and technical schools already existing in the region, this is still a crucial problem in

Table 10

LATIN AMERICA: ESTIMATED OCCUPATIONAL STRUCTURE OF THE LABOUR FORCE IN INDUSTRY AND PERCENTAGE OF EACH OCCUPATIONAL CATEGORY EMPLOYED

Occupational category	*Occupational structure of the population employed in industry (percentages)*	*Percentage of each occupational category employed in industry*
Professionals	0.4	8.1
Technicians	1.2	6.6
Administrators and managers	2.6	13.3
Employees and salesmen	7.9	11.0
Operatives and artisan workers		
Skilled	17.3	44.7
Semi-skilled	43.3	37.0
Unskilled	26.1	9.0
Service personnel	1.2	1.4
Total	*100.0*	*15.7*

Source: *Education, human resources and development in Latin America* (United Nations publication, Sales No.: E.68.II.G.7), p. 24.

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[20] Such as the National Training Service (Servicio Nacional de Aprendizaje-SENA) established in Colombia in 1957; the Educational Training Institute (Instituto de Capacitación Educativa-INCE) established in Venezuela in 1960; the National Industrial Training Service (Servicio Nacional de Aprendizaje de Trabajo Industrial-SENATI) established in Peru in 1961; the National Professional Training Institute (Instituto Nacional de Capacitación Profesional-INACAP) established in Chile in 1966; and the National Industrial Training Service (Serviçio Nacional de Aprendizajem Industrial-SENAI), which has existed in Brazil since 1946.

relation to both industrial productivity levels and to its social repercussions.

The lack of training of a high proportion of manpower, combined with the inadequacy or unsuitability of equipment and entrepreneurial weaknesses, results in low productivity, with the resulting rise in production costs which cannot be offset by paying low wages to unskilled personnel.

Further, as a result of the slow manpower absorption and the shortage of skilled personnel, a contradictory situation has arisen in Latin American industry: a steady demand for skilled operatives exists side by side with extremely high levels of unemployment. According to recent estimates, these average 6 per cent of the total population employed in industry, and may easily rise in periods of economic contraction.

The foregoing considerations apply with varying force to the different countries of the region, the problems being more acute in the relatively less developed countries and also in certain areas of each country because of the geographical concentration of industrial production in a few major centres.

The steps now being taken towards regional economic integration will probably lead to an even tighter situation with respect to requirements of human resources and their utilization. The gradual liberalization of trade and the establishment of large-scale production units in place of the great many minor enterprises that are already in existence may well increase unemployment in the short term to a scarcely tolerable extent.

Even if there were a growing volume of financial resources to help create new job opportunities in industry, and thereby offset the above-mentioned effects, it would no doubt become necessary to reorient and retrain large manpower contingents who would have to shift to other activities in the industrial sector or to other parts of the country, or even to other parts of the region.[21]

In view of these prospects, it would be wise to consider carefully, in establishing a development strategy for the next few years, whether the industrial sector can be forced to absorb a larger proportion of the manpower available, or whether it would be better to concentrate on creating new production capacity in more capital-intensive branches and products with a higher level of productivity per worker, and to leave the above-mentioned responsibility to the services sectors. In all probability, this dilemma will never arise, and it will be necessary to seek a balanced combination of the two extreme solutions, so that by specializing in some lines of industrial activity it will be possible to attain sufficiently high productivity levels to gain access to external markets, which is one of the prerequisites of future development, and, by increasing the number of activities with lesser capital requirements, a reasonable proportion of manpower may be absorbed.

Any decision on this point should be based on a comprehensive and far-reaching knowledge of the alternative technological solutions. For this it would be necessary first to carry out a programme of technological research taking into consideration the supply of natural resources, capital and manpower existing in each of the Latin American countries. Another prerequisite for development is a rapid increase in the supply of skilled manpower at all levels, which in turn would require the mobilization of resources and instruments going far beyond the field of industry itself.

5. INTEGRATION AND THE EXPORT OF MANUFACTURES TO WORLD MARKETS

Integration, in terms of import substitution at the regional level, and the promotion of exports of manufactures to world markets are considered effective instruments for reorienting industrial development in Latin America so as to take advantage of favourable conditions in different countries and technological advances by gradually opening the way for competition; this would be one means of revitalizing the weakened industrialization process and of overcoming the isolation and deficiencies noted in previous sections.

(a) *Integration*

The economic co-operation systems striving to achieve those objectives in Latin America are the Latin American Free Trade Association (LAFTA), the Central American Common Market (CACM) and, more recently, the Caribbean Free Trade Association (CARIFTA), whose main characteristics are briefly described below.

(i) *Latin American Free Trade Association.* The Montevideo Treaty established the following instruments to achieve its objectives: the liberalization programme (National and Common Schedules), the complementarity agreements, and to the resolutions on harmonization and coordination of policies. It is a well-known fact that the target of the liberalization programme is to eliminate intra-Area tariff barriers for substantially all of existing trade, through annual commodity-by-commodity negotiations (micro-negotiation). The idea was that the negotiations for the reciprocal opening up of markets would lead to the development and/or establishment of industries that would satisfy the new demand for industrial products thus created.

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[21] The LAFTA document entitled "*Financiamiento de la reconversión industrial y de la reorientación de la mano de obra*" (December 1967) deals with some of the problems discussed in the European Coal and Steel Community (ECSC) and the European Economic Community (EEC).

Apart from the instruments established by the Treaty, the mechanism based on the activities of the Advisory Commission on Industrial Development (CADI) and of the working groups of government experts on steelmaking, petrochemicals, pulp and paper and fertilizers is already in operation. The mandate of CADI and these groups is to devise and put forward specific integration formulas to the LAFTA Standing Executive Committee. An analysis of the trade flows between countries in the Area in recent years appears to indicate that the system, even with the limitations indicated in subsequent sections has given rise to increasing flows of industrial products, many of which are highly processed.

In fact,[22] while intra-Area imports of negotiated products rose from nearly 300 million dollars in 1962 to over 650 million in 1966, the proportion of manufactured products in those imports climbed from 18 to 25 per cent; total imports of manufactures thus reached nearly 160 million dollars in 1966 compared with 53 million in 1962, as shown in table 11.

The largest increases in exports are recorded in the following groups:[23] office machines (from 175,000 dollars in 1962 to over 7 million in 1966) mainly from Argentina and Brazil; metalworking machinery, mainly machine-tools (from 300,000 dollars to 3.2 million) from Brazil and Argentina; excavating and earth-moving machinery (from 5,000 dollars to 1.5 million) almost exclusively from Brazil; sewing machines (from 32,000 dollars to 1.3 million) from Brazil; domestic electrical equipment mainly razors (from 70,000 dollars to 900,000) almost exclusively from Argentina; primary batteries and cells (from 400,000 dollars to 1.7 million) from Brazil and Mexico; electronic valves and tubes (from 175,000 dollars in 1963 to nearly 2 million in 1966) mainly from Brazil, Mexico and Chile; and condensers (from 3,000 dollars to 1.1 million) from Brazil and Mexico.

There were also considerable increases in rubber tires (mainly exported by Brazil, Colombia and Uruguay), newsprint (from Chile), special steel bars (from Brazil), steel plates and sheets (from Brazil, Mexico and Chile), iron and steel tubes (from Mexico, Argentina and Brazil), razor blades (from Argentina and Mexico), musical instruments (from Brazil and Mexico), printed matter (from Argentina and Mexico), synthetic rubber (from Brazil and Mexico), chemical wood pulp (from Chile and Brazil), mechanical wood pulp (from Brazil), synthetic fibres (from Colombia and Mexico), etc.

Under the head of food, the main increases were in sales of canned fish (from 30,000 dollars in 1962 to 500,000 in 1966), Peru and Chile being the chief exporters, while canned fruit rose from 600,000 dollars to nearly 3 million, with Argentina, Chile and Mexico as the main exporters.

Exports of chemical products are highly diversified, the total being made up of a wide range of items, mainly supplied by Mexico. If the total for industrial products excludes metals —copper, lead and zinc, which, apart from not receiving large reductions in tariffs, are more in the nature of primary products—the share of industrial products more than doubled between 1962 and 1966 (increasing from 9 to 20 per cent); when metals are included, the share increases by only 40 per cent (from 18 to 25 per cent). For a clearer measurement of the effect of the trade liberalization programme, however, special consideration is given to machinery and transport equipment, which face strong competition from the rest of the world. Imports of these products rose from 1.3 million dollars in 1962 to nearly 29 million in 1966, or from 4 to 20 per cent of the total value of industrial products, excluding metals.

These figures undoubtedly lose some of their significance if they are compared with negotiated intra-Area imports (650 million dollars in 1966), and still more in relation to total intra-Area imports (some 760 million dollars in 1966) or imports from all parts of the world (6,500 million dollars in 1966).

Although these relationships do nothing to disprove the central fact that trade in industrial products increased substantially, there is no doubt that they raise the question of whether the above-mentioned objectives can be achieved by this means within the established time-limits. Unfortunately, there is no information to show how far the new trade in industrial products resulting from the LAFTA liberalization programme has been reflected in additions to production capacity—whether in the form of new plants or the expansion of existing ones —or whether use has been made of existing idle capacity. In either case, however, it has had a fairly favourable impact on industrial development in the major countries of the region, and to some extent in Chile and Colombia, although on a far smaller scale.

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[22] The analysis is based on the figures available for imports between 1962 and 1966. They include not only trade generated by tariff reductions through the National Schedules, but also that deriving from the Common Schedule and from complementary agreements.

[23] The Standard International Trade Classification (SITC) has been used.

Over and above the foregoing effects, however, even within its narrow limits this trade in industrial products has had the virtue of blazing a trail for industry in several countries, which have thus either initiated or intensified a tendency to emerge from their isolation into a more competitive sphere.

The multinational arrangement known as the Andean Group now embraces Bolivia, Chile, Colombia, Ecuador and Peru. According to the Declaration of Bogotá, it was established as a link in the process of integrating the whole region; the Declaration lays down the bases for an action programme which includes such aspects as the liberalization of reciprocal trade, co-ordination of industrial development policies, establishment of multinational enterprises, etc. It was also agreed to set up a subregional development corporation.

The formation of subregional groupings was viewed favourably at the Meeting of American Chiefs of State in April 1967 and the meeting of foreign ministers in September of that year, on the understanding that such subregional agreements should be temporary and compatible with the central objective of regional integration. In addition to the agreement on petrochemical products signed by four countries members of the Andean Group (Bolivia, Chile, Colombia and Peru), which is referred to in chapter III, other interesting projects include complementarity agreements on the metal-transforming industry and the motor-vehicle industry, more headway having been made in the studies on the former.

(ii) *Central American Common Market (CACM)*. It is generally agreed that the liberalization of trade has shown satisfactory results. Nearly all reciprocal trade (intra-regional imports amount to over 170 million dollars), which represents from 18 to 20 per cent of the total volume of trade, has been liberalized, and goods circulate freely throughout Central America. It is interesting to note the accelerated growth of the share of industrial products in this trade, which is now estimated at over 50 per cent.

A highly significant achievement is the adoption of a common external tariff, which at present covers 85 to 90 per cent of the area's total imports.

The Central American Common Market, which dates from 1957, represents the first attempt at subregional integration in Latin America. Besides being of longer standing than LAFTA, it has more instruments and institutions. The former include the General Treaty on Central American Integration, instruments for the equalization of import duties and charges, for the harmonization of fiscal incentives to development and for the protection of industrial property, and two agreements or systems for the promotion of industry. It has made great strides in the liberalization of trade. The main instruments for promoting and guiding industrial development have been the Régime for Central American Integration Industries and the Special System for the Promotion of Production. The first is designed to promote industries which require access to the whole Central American market in order to operate on a reasonably economic scale; the tendency, therefore, is for only one industrial establishment to be classified as an integration industry.

Industries in this category enjoy a number of advantages: more favourable official base values than those in the common external tariff, exemption from customs duties on raw materials or semi-finished goods, and from taxes on their production or consumption, as well as the tax benefits to which they are entitled under the Central American Agreement on Fiscal Incentives to Industrial Development. In exchange for all this, there are a number of obligations and commitments such as compliance with quality standards, use of a minimum amount of Central American capital, and a minimum initial production capacity.

The Special System for the Promotion of Production consists in the establishment of regional tariff protection over and above that provided by the Central American Standard Import Tariff, which is not applicable until production covers at least 50 per cent of regional demand. This was a resource used to support the Régime for Central American In-

Table 11

INTRA-AREA TRADE:[a] VALUE OF IMPORTS OF PRODUCTS INCLUDED IN THE LIBERALIZATION PROGRAMME AND ESTIMATED SHARE OF INDUSTRIAL PRODUCTS,[b] 1962-1966

(Thousands of dollars)

SITC classification					Description	Year				
Section	*Division*	*Group*	*Sub-group*	*Item*		*1962*	*1963*	*1964*	*1965*	*1966*
0					*Food and live animals*	*177,614*	*213,852*	*283,375*	*328,557*	*315,150*
		013			Meat in airtight containers	53	10	102	304	237
		024			Cheese and curd	281	297	441	532	671
		032			Fish in airtight containers	28	75	204	440	534
		052			Dried fruit	4,255	5,051	8,262	7,002	5,978
		053			Preserved fruit	595	2,298	2,138	1,819	2,902
1					*Beverages and tobacco*	*82*	*213*	*351*	*392*	*510*
2					*Inedibile crude materials*	*67,227*	*87,553*	*116,415*	*155,669*	*155,927*
			231.2		Synthetic rubber	35	485	2,227	3,001	5,144
			251.2		Chemical wood pulp	2,835	2,618	3,058	8,329	12,704
			251.2		Mechanical wood pulp	—	118	406	672	649
		266			Synthetic fibres	—	209	422	1,074	1,156
3					*Fuels and lubricants*	*152*	*29*	*123*	*135*	*291*
4					*Oils and fats*	*2,345*	*7,816*	*15,514*	*16,654*	*36,289*
5					*Chemicals*	*6,580*	*16,245*	*21,366*	*24,552*	*30,077*
6					*Manufactured goods classified chiefly by material*	*33,473*	*65,528*	*74,502*	*94,082*	*73,216*
			629.1		Rubber tires	513	433	7,680	7,721	5,992
			641.1		Newsprint	1,871	3,584	4,125	7,618	7,434
			653.4		Jute fabrics	90	528	3,710	8,785	2,622
			661.2		Cement	74	149	675	818	1,780
				673.2.3	Alloy steel bars		1	389	1,776	3,770
		674			Steel plates and sheets	2,365	8,508	7,100	19,579	8,025
		678			Iron or steel tubes	32	180	1,170	2,820	4,067

		696		Cutlery	—	573	286	529	1,447
7				*Machinery and transport equipment*	*1,253*	*8,874*	*14,976*	*22,015*	*28,965*
		714		*Office machines*	*175*	*1,292*	*3,491*	*4,794*	*7,010*
			714.1	Typewriters			358	591	1,830
			714.2	Calculating machines	13	15	1,773	1,674	7,804
			714.3	Statistical machines	162	1,277	1,353	2,502	2,100
		715		Metalworking machinery	299	1,061	2,677	2,429	3,248
			717.3	Sewing machines	32	1,684	1,613	1,336	1,256
			718.4.2	Excavating and levelling machinery	5	15	195	1,457	1,535
			719.3	Lifting machinery	39	201	613	797	751
			719.6.2	Machines for cleaning or filling bottles ...		21	503	479	784
			719.9.2	Caps, cocks, valves and similar appliances		141	220	567	603
	72			*Electrical machinery*	*670*	*2,456*	*3,972*	*6,305*	*8,866*
		722		Electric power machinery	40	56	350	607	705
		724		Telecommunications apparatus	142	5	123	422	569
		725		Domestic electrical equipment	67	1,013	1,389	952	898
			729.1.1	Primary batteries and cells	415	516	591	908	1,716
			729.3	Valves	—	175	385	1,353	1,908
			729.9.5	Condensers	5	79	229	670	1,120
		713		Railway vehicles		12	1,226	—	13
8				*Miscellaneous manufactured articles*	*4,167*	*2,752*	*6,395*	*7,681*	*10,516*
		891		Musical instruments	23	88	142	404	882
		892		Printed matter	3,705	1,774	4,294	5,234	7,009
				I. *Value of total imports*	*292,894*	*403,282*	*533,024*	*649,754*	*650,872*
				II. Value of imports of industrial products[b]	52,371	96,679	124,290	159,794	158,442
				Ratio II:I	18%	24%	23%	25%	25%
				III. Value of imports of industrial products excluding metals (682,685/6)	27,720	51,589	83,247	117,796	129,209
				Ratio III:I	9%	13%	16%	18%	20%

SOURCE: LAFTA.

[a] Includes imports of Argentina, Brazil, Chile, Colombia, Mexico, Paraguay and Peru.

[b] Industrial products are taken to be those listed in sections 0 and 2, the whole of sections 1, 3, 6, 7 and 8, and half of section 5 (chemicals); section 4 is considered to cover primary products (not industrial items).

tegration Industries and to bridge certain gaps that had been noted in its operation.

Lastly, the Central American Agreement on Fiscal Incentives to Industrial Development is intended to supplement the other systems in the promotion and orientation of new industries and the expansion of existing establishments; the incentives are scaled according to the type of product manufactured, the greatest benefits being extended in respect of capital and intermediate goods.

These incentives mainly comprise total or partial exemptions from customs duties, taxes on income and profits, and taxes on assets and net worth.

Honduras and Nicaragua—as economically relatively less developed countries in the area—have received preferential treatment through this group of promotional measures.

Broadly speaking, Central America's decided progress in the field of trade contrasts with its sluggish industrial development. Active promotion is needed, and this in turn requires industrial development programming at the national and subregional level, which is definitely lacking in Central America.

As may be observed, although the integration process in Central America has more institutional instruments than its counterpart in the Latin American Free Trade Association, its achievements cannot be regarded as strikingly superior to LAFTA's. In both cases there have been negative and retarding factors whose action will be analysed later,

(iii) *The Caribbean Free Trade Association* (*CARIFTA*), which was established at the end of 1965, originally comprised Antigua, Barbados, Guyana, and Trinidad and Tobago. Jamaica was admitted at the end of June 1968, and the West Indies Associated States a few days later.[24]

Its main commitment is to abolish import duties over a period of ten years on a list of products covering about 75 per cent of present intra-area trade. Special treatment is given to agricultural commodities, particularly sugar.

In the field of industry, Trinidad and Tobago is particularly interested in obtaining new markets for its petroleum products, while Barbados' chief hopes lie in expanding its re-export trade, Guyana, with its larger territorial area, is concerned with developing certain industrial crops and related industries.

Since CARIFTA is a recently established system, there has been no experience on which to base any opinion regarding its operation.

(b) *Exports of manufactures to world markets*

The Latin American countries, like all developing countries, have traditionally been exporters of primary commodities, including agricultural and mining products. Some of them have also been traditional exporters of processed products: canned meat and semi-processed wool products (Argentina and Uruguay), copper (Chile), lead, silver and zinc (Mexico), petroleum products (Venezuela), etc. It is well known, however, that these industrial exports had very special characteristics and development trends; and in many cases the foreign exchange earnings were not even controlled by the countries concerned. The products were generally designed to satisfy a specific market, in the hands of foreign enterprises, which controlled both ends of the operation.

It was only at the beginning of the present decade that the Latin American countries became concerned with developing a genuinely autonomous flow of manufactured products to the world market.

This coincided with the institution of the LAFTA and CACM integration systems and with the emergence of trends in international co-operation which focused aid to developing countries on the improvement of their trade, through, for example, the opening up of the developed countries' markets to industrial exports from developing countries.

The major countries of the region were already at the point where manufacturing techniques imposed scales which in may cases went beyond the limits of the domestic markets; this naturally led them to consider the possibilities offered by external markets. Moreover, in at least two countries—Argentina and Brazil—a severe contraction of domestic demand undoubtedly exercised an effect and inspired an active interest in external markets.

All this took place concurrently with the efforts made at international meetings—as in the case of the sessions of the United Nations Conference on Trade and Development (UNCTAD) —to secure access to the industrialized countries' markets for manufactures from the rest of the world.

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[24] The following is a complete list of the members of CARIFTA: Barbados, Guyana, Jamaica, Montserrat, St. Vincent, Trinidad and Tobago, and the West Indies Associated States (Antigua, Dominica, Grenada, St. Kitts-Nevis-Anguilla and St. Lucia).

In more recent years—especially since 1965—the majority of the Latin American countries have devoted most of their efforts in this sphere to the establishment of an institutional system, with differing degrees of success. Mexico was the first country to complete such a system; its focal point was the Banco Nacional de Comercio Exterior, an autonomous public institution which, together with other bodies, fulfils the appropriate functions.

Although these efforts, which in some countries cover virtually the whole range of government support for exports, have not had striking results, there is no doubt that, in some degree, whatever has been achieved thus far has been made possible by the relevant provisions adopted. It should be noted in this respect that, on occasion, the creation or expansion of export flows was due largely to exchange, fiscal and other general measures aimed essentially at improving the market prospects for primary commodities and not to deliberate action. Exports of manufactured products amount to about 800 to 900 million dollars,[25] or less than 10 per cent of total exports.

They consist largely of exports to other countries in the region, particularly those belonging to the integration system. In 1966, 31 per cent of Argentine exports and 40 per cent of Brazilian exports found markets in Latin America. It is much more significant, however, to consider exports of non-traditional, highly processed manufactures, i.e., to eliminate the effect of products such as hides, combed wool, canned meat, etc. from Argentina, and menthol, coffee extract and so on from Brazil, whose principal markets have traditionally been the industrial countries. For a more accurate—although still very rough—idea of the importance of the Latin American countries as the destination of manufactures produced in the region, attention should be turned to comparatively recent exports of highly processed products. Thus, in 1966, Argentina dispatched 76 per cent of its total exports of metal products and machinery of all types to other Latin American countries, and Brazil 73 per cent.

An appreciable volume of exports to other areas has also been recorded, however: cotton textile products (yarn and fabrics) from Brazil and Colombia to the United States, Brazilian printed fabrics to South Africa and Angola, Chilean furniture and footwear to the United States and Chilean newsprint and pulp to Australia, communications materials from Argentina to Viet-Nam, etc.

The developing countries are concentrating their efforts on obtaining access for their manufactures to the markets of the industrialized countries through a system of general non-reciprocal preferences. The attitude of the developed countries at the second session of UNCTAD was obviously not very encouraging. It was decided there to set up a Special Committee on Preferences, as an ancillary organ of the Trade and Development Board, to continue the consultations with a view to working out a system of non-reciprocal and non-discriminatory preferences in favour of developing countries.

The need to find some workable formula is becoming increasingly urgent, especially in view of the emergence and ratification of new systems or procedures giving special preferences to particular groups of countries, as is happening between the African nations, and the natural counterpart of this system, i.e., reverse preferences which benefit the developed countries.

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[25] Excluding exports of petroleum products, unprocessed metals—copper, lead, zinc, etc.—sugar, wood, oils and other traditional exports of manufactures and semimanufactures.

Chapter II

OUTLINE OF LATIN AMERICA'S MAJOR INDUSTRIAL DEVELOPMENT PROBLEMS

The aim of the present chapter is to give a brief account of those aspects of industrial development in Latin America to which special attention should be devoted in the formulation of future policies. For the sake of simplicity and clarity, the problem will be classified in seven major categories. This list should not, of course, be interpreted as an attempt to establish an order of priorities.

1. ECONOMIC CALCULATION REQUIREMENTS IN AN INDUSTRIALIZED SOCIETY

In a number of countries inflationary processes of varying intensity have accompanied industrial development in Latin America, which has been based essentially on import substitution. This situation, often combined with the maintenance of artificially high exchange rates, may actually have facilitated the process, by stimulating the transfer of resources from the traditional export sectors to the nascent industries. However, as the progress and consolidation of industrialization gave rise to new requirements in respect of long-term planning for industrial operations. whether these were conducted by private or by public enterprises, the stabilization of the currency became a vital requisite for leaving behind the current phase of relatively inefficient industrial development more or less cut off from world flows of trade and technology, and making a start on the progressive integration of Latin American industry, at the level of both regional and world markets.

The structural changes that have occurred in Latin America during the past twenty years find synthetic expression in the high proportion of the gross product generated in manufacturing and construction—now some 30 per cent on an average, as against only about 18 per cent at the end of the Second World War. The corresponding figures are much higher still in some countries of the region, which from time to time in recent years have derived up to 40 per cent of their gross product from the transforming industries in question.

The foregoing data reflect sweeping changes in the structure of the economy, and reveal the need for corresponding adjustments in the institutional set-up and in economic policies as a whole, because the production, financing, distribution and internal and external marketing of such a large volume of manufactured goods carry with them other requirements than those of economies where the product of the manufacturing sector is much smaller, and mainly primary commodities or semi-manufactured goods are produced in the main.

These requirements make themselves felt from various angles. In the first place, in an economy at a relatively advanced stage of industrial development, a hard currency which makes economic estimates meaningful is indispensable for those aspects of entrepreneurial activity which consist in estimating costs, analysing rates of return, planning new investment that will take a long time to mature and programming the expansion of existing markets and the conquest of new ones.

Secondly, a large modern industry, characterized by increasing capital requirements and investments that are slow to mature, cannot be financed on an even moderately satisfactory basis in an atmosphere of rapid inflation, which discourages saving and virtually paralyses capital markets, as well as being an incitement to speculation and a scourge to long-term operations.

The need to strengthen the capacity for capital formation in both private and public enterprises is perhaps one of the most cogent arguments for real stabilization of the currency, as a prerequisite for the acceleration of industrial development. An enterprise, especially a large one, is normally heavily dependent upon the capital market for resources to finance its expansion. Persistent inflation has hampered the operation of Latin America's incipient capital markets, and in one or two cases has even wiped out capital markets whose volume of transactions placed them in a comparatively outstanding position in relation to the industrialized countries themselves. And since dependence on capital markets for the financing of development is greater in the case of large enterprises than of medium-sized or small concerns, which can resort mainly to capital contributions from the restricted circle of their owner-partners, persistent inflation has the additional drawback of making it harder to build up and consolidate large-scale undertakings, which is a very important consideration for the assimilation of new techniques or the improvement of the position of Latin American enterprises vis-à-vis their foreign counterparts. Similarly, this is another factor making for the increased dependence of Latin America's industrial development upon foreign private capital and thus aggravating one of the most serious problems that have to be faced by industrialization policy in the countries of the region.

Accordingly, the analysis of Latin America's recent experience in the field of industrial development suggests that if the process is to be speeded up and streamlined sufficiently to permit of a break-through into world markets, effective stabilization of the currency is essential, with all that the pursuit of this basic objective may entail in the way of steadfastness of purpose, supplementary policies, and efficiency and flexibility in the use of the appropriate instruments, notwithstanding the greater obstacles to its attainment in developing countries.

2. IMPORT SUBSTITUTION, METHODS OF INDUSTRIAL PROMOTION AND ALLOCATION OF RESOURCES

Secondly, mention must be made of the distorting effects of import substitution policy on the allocation of resources. In many sectors of industry it results in high costs, which react on the economy in different ways, reducing the real income of consumers, cramping the growth possibilities of other sectors that use the products of the former groups as inputs, and limiting export opportunities.

The criticism levelled against import substitution should not be taken to imply a generalized disparagement of the validity of that method of achieving industrial development at the time when it was applied and in the circumstances then prevailing. An appraisal aiming at that sort of historical evaluation would probably bring to light certain negative factors that have had an adverse influence on the structure of industrial production deriving from tariff protection. They would include, in particular, the non-selective character of protectionist measures, or if they were selective, the unsuitable criteria applied, or the excessively high barriers set up, or the fact that import restriction measures were mainly or entirely subordinated to balance-of-payments objectives, regardless—or almost regardless—of the internal structure of production that was thus being established. For the time being, however, the aim is not to undertake a critical evaluation of past developments, for which purpose the different circumstances of the individual countries would have to be taken into account, but to point out what is needed in present conditions. The structure of production is now widely diversified, and in many countries of the region[26] additional import substitution possibilities are largely confined to highly capital-intensive lines of production involving complex technology. Given this situation, industrial development based on substitution and the somewhat rough-and-ready methods adopted by import substitution policy should give way to policies and instruments of a different type, more dependent on the operation of the market and more closely integrated with an over-all policy designed to promote efficiency and technical progress throughout the whole economy.

In this process of reorientation, an essential step will be to make industrial development increasingly independent of balance-of-payments problems and, above all, of quantitative, exchange and tariff restrictions on imports manipulated in relation to external payments problems. The fact that in most of the Latin American countries industrial development has been subordinated to changing requirements in respect of external payments controls is largely responsible for many of the handicaps by which the structure of industrial production in the region is affected today. In this context, suffice it to mention three major difficulties.

In the first place, the scale of the protection afforded through import controls has often been out of proportion to what was really needed to offset initial disadvantages, deriving either from inadequate scales of production or from lack of technical and administrative experience. As the protectionist barriers were established with an eye to balance-of-payments problems, they were set so high as to pre-empt markets and thus create situations that were unfavourable to competition and to the constant improvement of manufacturing methods and processes.

Secondly, for the same reason—the predominance of external payments considerations in the management of import controls—there has been a tendency to extend protection indiscriminately to a very wide range of productive activities or even to all branches of production, which has militated against specialization and the channelling of investments in terms of comparative advantages. Even when selective criteria have been applied in relation to import controls, they have as a rule been based on social considerations, the idea being to restrict external purchases of "luxury" articles and encourage imports of "essential" items, such as raw materials and capital goods. This has helped to distort the structure of production, giving it a bias towards the manufacture of non-essential consumer goods, and holding back the sectors of key importance for development such as steelmaking, the chemical and petrochemical industries, and the manufacture of industrial machinery and equipment. Thus the social objectives visualized (although as subsidiary aims) in the policy of controlling imports for balance-of-payments purposes have not been attained, since powerful incentives have been provided for the establishment of domestic consumer goods industries with over-emphasis on luxury items, and at the same time, flaws and disequilibria have been built into the structure of production which are still adversely affecting the prospects of accelerating industrial development in the region.

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[26] It must be borne in mind, of course, that existing conditions differ widely from one country to another. The comments formulated here relate primarily to those Latin American countries where industrial development has made most progress.

It should be pointed out, however, that many of the durable consumer goods that are regarded as luxury items—cars, for example—do or do not fall into that category according to the circumstances in which they are used. Moreover, the industries that produce them, besides being concerned in the manufacture of other products which are essential capital goods—lorries, tractors, stationary engines, etc.—constitute markets for industrial raw materials and intermediate products (steel and other metals, castings, forgings, parts of all types, etc.) which are used indiscriminately in the manufacture of both luxury and non-luxury consumer goods and of capital goods, and generally call for such a big scale of production that it can only be sustained by the sum total of demand for finished products of all kinds. Nevertheless, despite the reservation implicit in these considerations, the distorting influence of import control criteria on the structure of industrial production in Latin America is beyond all question. It is evidenced, for instance, in the fact that Latin America still effects large-scale imports of items for the production of which the region clearly possesses potential comparative advantages, either in the shape of the natural resources on which the corresponding manufactures are based (in the case of steel, aluminium, pulp and paper, and many basic chemical products, both organic and inorganic) or by virtue of other manufacturing characteristics and the natural or acquired aptitudes to be found in many of the Latin American countries (in the case of wood products, machinery and equipment, etc.).

Thirdly, another great drawback to industrialization obtained as a by-product of measures to stabilize the balance of payments is the dissociation of the process from industrial programming. Either there is no such thing as systematic programming—for the very understandable reason that its introduction is not worth while, since the promotion instruments used are manipulated at the level or as a function of external payments problems—or where it does exist, it is ineffectual and academic, for want of instruments of action. This divorce between industrial development and programming is a particularly unfavourable factor for obvious reasons, only one of which will be singled out here: in increasingly complex modern economies, like those of many Latin American countries today, industrial activities are characterized by their close interdependence and self-sustained growth. The installation of certain industries is a *sine qua non* for the establishment of others which use their products as inputs, if the course followed is not to be that of undertaking solely finished manufactures, entirely dependent upon imports for the raw materials and machinery required. Conversely, the expansion of certain branches of industry manufacturing finished products may be an essential requisite for the formation of a market for a specific raw material (pulp, steel, aluminium, etc.) or intermediate product (forgings, miscellaneous semi-finished metal products, chemical products, etc.) compatible with minimum economic scales of production in the activities concerned. This consideration is all the more important in practice, inasmuch as it is precisely in these "basic" manufactures that the ratios between economic scales of production and the domestic markets of the Latin American countries are least satisfactory.

Hence it is clear that industrial development programming normally has an important role to play, as a supplement to the operation of market forces, in establishing selective criteria which in each case will ensure that new industries are set up in the most appropriate order.[27] If the promotion of industrial activities depends primarily upon the indiscriminate protection resulting from balance-of-payments stabilization policy, determined by criteria which are necessarily alien to the guiding principles of industrial development, industrial programming is deprived of the opportunity to fulfil its purpose.

As will be shown in more detail in a later chapter, the reorientation of economic policies called for in this case is a complex task, and has a bearing on a great many aspects of over-all economic policy. In part, it would entail an endeavour to solve external payments problems primarily by far-reaching measures closely linked to monetary policy, and as little as possible through the prolonged or permanent application of extremely stringent import controls. The attainment of such an objective depends, of course, upon the concurrent adoption of effective measures to stabilize the currency, in view of the close relation between inflationary pressures and external payments problems.

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[27] It has been suggested that programming as a supplement to market forces may assume even greater importance at the level of Latin America as a whole, in connexion with the relatively less developed countries and the economic integration of the region, than purely in the context of the individual Latin American countries, which is the approach primarily adopted here.

This change of direction should be accompanied, in the first place, by a radical revision of the customs tariff, which should be reinstated as an instrument solely or mainly for the protection of industry, to be applied in conformity with the objectives and orders of priority resulting from industrial programming. Secondly, much more frequent and effective use should be made of industrial promotion instruments whose application has only recently begun to spread in Latin America: *inter alia*, improved and diversified industrial credit facilities, tax exemptions, and the establishment of public utilities or infrastructure in close relation to private investment projects. It is true that these promotion instruments have been in use for some time in many Latin American countries. The point to be stressed here, however, is that the use made of them has been inadequate and relatively ineffectual, precisely for want of links—in practice impossible to forge, in the existing circumstances —with import substitution machinery based on foreign trade controls and in many cases produces results that run counter to the aims of industrial programming. In other instances, the superimposition of one method of promotion on another—direct promotion on top of protectionism—on behalf of one and the same activity gives rise to pre-empting of markets and to capital subsidies that represent transfers of resources probably far in excess of what is needed to produce the intended promotional effect.

3. Economic use of capital and acceleration of development

Another important aspect of the requisite reorientation of industrial development in Latin America relates to the economic use of capital, which is adversely affected by specific policies and by a number of practices adopted particularly in connexion with the development of the more capital-intensive industries, such as steelmaking, the chemical industries, pulp and paper manufactures, non-ferrous metallurgy etc.

The first problem to be discussed is that of economic plant sizes, the magnitude of the economies of scale obtained in establishments approximating to the sizes in question, and the inadequacy of domestic markets in relation to such requirements. The sectoral analyses made, and the paragraphs in chapter I that deal with the technology problem, illustrate the point, and provide a basis for approximate quantification of the economies of scale that are lost because of the separation between the individual country markets for some major sectors of industry. The economic integration of Latin America and the expansion of exports of manufactures to the markets of the industrialized countries are the appropriate instruments for steadily increasing scales of production and reducing the gap between the usual sizes of plants in Latin America and of those serving the external markets in which it is hoped that Latin American industry will be having to compete in the near future.

A question which in a way should come first, however, and which is perhaps of greater practical importance for the short and medium term, relates to the tendency for capital to be inefficiently utilized as the result of plant sizes which are below the economic minimum and smaller than would be warranted by the corresponding domestic markets: in other words, the tendency not to take due advantage of all opportunities of making the industrial plants established as large as possible within the limits set by existing volumes of apparent consumption. As long as countries fail to avail themselves of the chances that their own markets afford them of saving on investment and production costs by manufacturing on larger scales, how can the expansion of those same markets on a multinational basis be seriously considered as a practical proposition?

It is relatively common, where "basic" industries are concerned, to find that two or three plants are sharing a domestic market so small that in its entirety it would be barely sufficient on its own—or indeed totally insufficient—to sustain a single plant of moderately economic dimensions. The resulting diseconomies of scale represent a considerable waste of capital.

The following are three cases in point. In one of the Latin American countries there are two aluminium plants in operation, with an approximate annual capacity of 20,000 tons of aluminium metal each, and a third, with an annual capacity of 25,000 tons, is under construction. The aggregate sum invested in the buildings and equipment (excluding social projects, infrastructure, etc.) of these three integrated plants (they also produce alumina) may be estimated, on the basis of technical coefficients taken from an ECLA publication, at 114 million dollars, or 1,750 dollars per ton of capacity. If the aggregate capacity of all three —65,000 tons—were installed in a single plant, the investment that would be required may be estimated at some 83 million dollars (about 1,270 dollars per ton). In other words, a saving of 31 million dollars could be effected, i.e., nearly 30 per cent of the present estimated investment in the three plants. In actual fact, the saving of capital would probably be much greater, since for each of these plants substantial sums have to be invested in infrastructure projects (roads, water supply, power, etc.) which are not taken into account in the foregoing estimate. Furthermore, the construction of a single plant with a capacity of 65,000 tons would be far from exhausting the possibilities of achieving economies of scale in this line of production. One of its characteristics is the rapid decrease in unit investment up to a good deal more than 100,000 tons, which is the usual capacity of plants serving world markets.

The second example relates to steelmaking. Two steel mills were built at the same time, each with an initial capacity of about 500,000 tons of steel ingots, to be expanded later to 2 million tons. The aggregate investment represented by these two integrated plants certainly exceeds 600 million dollars, whereas the investment required for a single plant with twice the above-mentioned initial capacity would probably be little over half that sum. It is true that the initial investment figures for the two mills are inflated by over-sizing of a great deal of auxiliary plants because of the subsequent expansion projected, and that the investment per ton required for expansion purposes will be correspondingly lower. But this is no reason why the practice of over-sizing the plant in which the initial investment is placed, which is current in the iron and steel industry, could not have been applied in the construction of one mill with an initial capacity of 1 million tons of ingots, while construction of the second could have been deferred to a later date, in accordance with the growth of the market. The saving of capital during the period in which, as matters stand, the two plants are operating below the minimum economic level of capacity (about 1 million tons, since both mills manufacture flat rolled products) would have been considerable.

Lastly, a third example is afforded by the chemical industry. In one of the countries of the region three ethylene plants are in operation, using as raw material propane in some cases and naphtha in others. The total amount invested in these three plants, whose aggregate production capacity is about 35,500 tons (although their real output is less), was approximately 12 million dollars. The investment needed for a single plant with the same total production capacity would not be more than about 6 to 8 million dollars, i.e. (as in the foregoing example taken from the steel industry), little over half the sum invested in the existing split-up industry.

What circumstances or what policies are responsible for capital-wasting practices such as those illustrated above, which are current throughout the whole of Latin America? The causes differ, of course, from country to country and from one branch of industry to another.

One of the contributing factors is the attitude of the authorities to the existence of several projects for starting the same line of manufacturing. They are prone to consider that the decision to approve all the projects at once will be in the country's best interests, since it will supposedly result in the expansion of the total volume of capital formation. This view disregards, in the first place, the inevitable reduction of the scale of production in each project, and, secondly, the illusory nature of the increase in investment at the level of the over-all economy. The blame may largely be laid on the lack of official advisory agencies qualified to make a satisfactory technical and economic evaluation of major projects, and also, in some instances, on the limited political and administrative importance of such agencies, where they exist, in the bureaucratic hierarchy of the country concerned.

Inefficient use of capital may also be partly imputable to the competition between international consortia to establish production facilities in countries that were formerly importers of the items they manufacture, and the leaning towards over-simplification that inclines national authorities to divide up the market arithmetically among the various would-be investors. They supplement this procedure, of course, by setting up protective tariff barriers in inverse proportion to the resulting scales of production, again under the illusion that they are helping to swell the volume of investment in basic industries, regardless of such essential aspects of the problem as scales of production, investment per ton of capacity and production costs.

The same sort of situation arises when the central authorities decide to set up certain basic industries for reasons of purely regional concern, irrespective of the considerations of efficiency and cost in their broadest sense which are implicit in the general tenor of national economic and social development policy.

Another factor responsible for the underutilization of capital is the extremely long time that major projects take to mature; apart from other drawbacks, this means that considerable amounts of capital are tied up for inconveniently lengthy periods.[28] Among the various determinants of this state of affairs is the failure of Governments to give clearly defined indications of the technical, financial and locational characteristics they would like the projects to embody. As a result, the necessary guiding principles are established in makeshift fashion in response to pressures and counter-pressures on the part of the various interested groups, and the less well-equipped the government to formulate directives or at least to arbitrate between the potential investors, the longer this process goes on. The investors in question are not always private consortia or foreign enterprises; they sometimes include autonomous or semi-autonomous State institutions, whose interests or views are not always identical with those of the central authorities. To make matters worse, especially as far as the central Government's difficulty in playing the role of arbiter is concerned, the official agencies whose function it should be to advise on final policy decisions have had little or no technical training for the task. This weakness on the part of the institutions that should evaluate from the technical and economic standpoints, in adequate depth and detail, the different characteristics and economic repercussions of investment projects, will very probably be aggravated in the future, not only because of the increasing technical complexity of the modern industries that will have to be established, but also on account of the rapid rise in the number of large-scale projects that will have to be handled every year, throughout the region, in consequence of the prospective growth of the main sectors of industry.

The conclusions to be drawn from the foregoing considerations, from the standpoint of a possible reorientation of Latin America's industrialization process in the course of the next development decade, relate to the introduction of basic changes both in policies for the major sectors of industry and in the institutions that lay down guidelines for investment policy, and will be more explicitly set forth in a later chapter.

4. Use of manpower and alternative techniques

A salient feature of industrial development in Latin America has been the persistence of considerable margins of unemployment, even in cases where a good deal of effort has been devoted to industrial promotion and the establishment of new manufacturing activities. This persistent and in many cases rising rate of unemployment has aroused concern as to the manpower absorption capacity of the industries that are growing up in the region, and has prompted investigation of its root causes. They may lie in the changes in the intersectoral structure of the economy that accompany development, in the proportions of the factors of production that characterize modern production techniques, or in both factors at once. Structural changes are represented mainly by the decline of the agricultural sector's share in the product and in employment of labour, and by the reduction of the volume of manpower employed in agricultural activities as a result of the improvement in agricultural productivity. The production techniques available for application in the manufacturing sector reflect the proportions in which the factors of production are to be found in developed countries where such techniques have their origin, and therefore, by increasing the capital and reducing the labour required per unit of product, add yet more surplus manpower to the labour force released by the mechanizations of agriculture. A vicious circle is thus created in Latin America's development process, since endeavours to modernize agriculture and to introduce the most up-to-date techniques in secondary activities will increase the aggregate product only at the cost of increasing structural unemployment.

Some aspects of this problem must be more carefully considered, at least from the angle of industrial development.

The manpower absorption capacity of an economy is a function of two main variables: the over-all growth rate of the product, and the proportions of the factors of production that are characteristic of efficient techniques. If the growth rate of the product is too slow in relation to a given rate of population growth, there is bound to be a certain amount of unemployment, which will be the more considerable, the more capital-intensive the prevailing production techniques. Obviously, if the rate of increase of the economically active population—very high to begin with—is rising still further, the growth rate of the product must keep pace with it closely enough to guarantee full employment; and that growth rate depends primarily upon the rate of capital formation and, in addition, upon the efficiency with which capital is utilized, i.e., on the capital-output ratio.

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[28] In many cases, a corollary of the protracted maturation period of major projects is the length of time it takes to obtain a marketable product in the early stages of industrial operation. But here factors of a different kind come into play, analysis of which is outside the scope of the present study.

Latin America's situation in this connexion is by no means favourable, in view of the population explosion and the slackening of the growth rate of the product. The latter in its turn reflects both external-sector difficulties (adverse trends in the capacity to import and unfavourable movements of capital), and deficiencies in capital formation, as regards not only the proportion of the product saved and invested, but the efficiency with which the investment concerned is distributed and utilized throughout the economy.

What are the specifically industrial factors contributing to this state of affairs? To take first the question of deficient capital formation, the determinants clearly include the low level of capital formation in industrial enterprises themselves—or in other words, as noted elsewhere in the present report, the inadequate degree of self-financing in most branches of industry—and the relatively low rates of return which are prevalent, despite high tariff protection, in many industries, especially the most capital-intensive. These negative factors reflect the instability that still characterizes industrial and entrepreneurial structures in practically all the Latin American countries; moreover, their impact is reinforced by the fact that machinery for tapping savings is so shaky that it might as well not exist, and, as a result, capital formation in the entrepreneurial sector is hindered and reduced.

Secondly, the growth rate of the product is also weakened by the decline of the capital-output ratio in many branches of industry, and, once again, particularly in the more highly capital-intensive. Of the different circumstances that help to account for inefficient use of capital —defective formulation or execution of major projects, anti-economic scales of production, or lack of complementarity between private and public investment in infrastructure—some have already been mentioned in the present chapter, and all of them have a depressive impact on the capital-output ratio. In other words, the obstacles and stumbling-blocks crowding in the way of major projects (mainly connected with steelmaking and the non-ferrous metals and chemical industries), and determining disproportionate investment requirements per unit of product, constitute a key factor in the reduction of the economy's growth potential, and thus do much to undermine the manpower absorption capacity of the production system.

If this diagnosis is accurate, there can be no doubt as to the general direction that remedial measures should follow. Increasing demographic pressures, and the likelihood that the influence of the external sector will continue to be unfavourable in the predictable future, call for a drive to maximize the growth rate of the product through more vigorous mobilization of internal investment resources and progressively greater efficiency in the use of the region's meagre supply of capital. This improvement in efficiency should take place in two directions. The distribution of capital throughout the economy should be brought into line with comparative advantages and the position in respect of competition at the world level; and more efficient structures of production should be established, which are designed to curb the downward trend and then raise the level of the capital-output ratio. The first of these two requisites—an allocation of resources more consonant with comparative advantages—presupposes increased reference to market prices as pointers to investment, together with elimination of the distortions affecting price systems. The second implies the indispensability of much more definite and precise policies and administrative procedures for the selection and channelling of investment in major projects: policies and procedures far more independent of local considerations that have nothing to do with development strategy, and far more closely linked to consistent and effective programming for the economy in general and for industry in particular.

The foregoing remarks rest on the assumption that the programming and execution of investment projects will be based on adoption of the efficient production techniques available in the countries which are the forcing-houses of technology. Is it to be inferred that the Latin American economies can expect no help in solving their employment problems from a modern technology which is evolving on highly capital-intensive lines? Does the state of technique offer them no alternative options? Is there absolutely no possibility of a technological development process that will be autonomous in the sense of being conditioned by determinants (market sizes, relative prices of factors of production, differential characteristics of locally available raw materials and productive resources) which exist in the economic and industrial life of Latin America and not in that of the highly industrialized countries?

Each of these questions must be briefly considered.

In the first place, it is true that in most cases the evolution of modern technology is characterized by production techniques which in relative terms, require more and more capital and less and less manpower per unit of product. The findings of the studies on specific branches of industry testify to the fact. How far this trend is determined by scientific and technical factors, irrespective of the economic interests of the countries in which basic and applied research is conducted, or by the growing disparity between the prices of capital and labour, which acts as an inducement to replace the latter factor of production by the former, is still a moot point. But in either case the result is the same: the production processes incorporated in modern techniques are becoming increasingly capital-intensive.

Although these techniques require more capital and absorb less manpower, developing countries such as those of Latin America are virtually compelled to adopt them because they are generally more efficient in the economic sense of the term: that is, they increase the amount of the product obtainable per unit of any factor of production applied, including the one that is in short supply in developing countries—capital. Consequently, although technological progress in the developed countries is motivated by the desire to economize labour, the fact that as a rule the new techniques also permit of a saving of capital makes them attractive to developing countries, which thus find themselves faced with an unemployment problem in so far as the rate of economic development is too slow in relation to the prevailing state of technique.

In other words, for the Latin American countries the substitution of labour for capital with a view to raising the level of employment would mean the sacrifice of a varying proportion of the product, i.e., it would be possible only through the adoption of less efficient production techniques. This is the crux of the technology problem for developing countries. Owing to the nature of the techniques available, and the direction in which modern technology is forging ahead at an increasing pace, the steady assimilation of new techniques, upon which the modernization of backward economies depends, will be compatible with the employment of large proportions of the working-age population only if the rates of growth of the gross product are so high as to be quite out of line with Latin America's development process in the past.

The second question in the list, relating to the existence of alternative technological options, calls for more thorough investigation of the subject. The assertion that the state of technique is characterized by rigidity is a mere generalization, masking the differences between individual situations in different branches of industry.

The availability of technological alternatives —that is, the possibility of adjusting the degree of capital-intensiveness to the relative shortage of the factors of production—is negligible for all practical purposes in activities in which continuous transforming processes are applied, such as the chemical industries, steelmaking, and non-ferrous metallurgy. In some of these activities technology has developed at lightning speed in recent years, and the new techniques emerging represent a substantial saving of manpower, increasingly large minimum economic scales of production, and the tying-up of more and more capital per unit of product.[29] The alternatives, in the case of such industries, are not contemporary and equally efficient techniques. They represent earlier stages in the evolution of technology, characterized, admittedly, by greater use of labour, but at the same time, in the sectors where techniques have developed most rapidly, involving a considerable loss of product per unit of capital. Thus, the adaptation of technology to the conditions of the environment would entail the adoption of old-fashioned and less productive techniques, which in many cases are also inferior to the more advanced processes from the standpoint of the quality of the goods produced.

The situation is different, and somewhat more favourable, for activities such as the metal-transforming, textile and other consumer goods industries, in which a wider assortment of equipment is used, the degree of specialization varies, and, in many instances, the pace of technological progress is slower. The choice of machine-tools for performing a given steel-transforming operation or making a given product of the metal-transforming industry affords a fair number of options both as regards the degree of automation and of specialization (as against universality) of the equipment, and in respect of other technical characteristics, dependent upon length of production series, workshop lay-out and relative prices of capital and labour. On the basis of a proper economic calculation, it is possible to select production techniques and equipment which, while still representing the most productive solution in relation to the factor in short supply, permit the use of a larger proportion of labour and a smaller proportion of capital. The range of economically sound technological alternatives thus available varies in accordance with the characteristics of the industry and the industrial milieu in which it is located. As a rule, the selection of production techniques and equipment for the industries under discussion is unsatisfactory in Latin America for several reasons. There is a want of technical know-how in entrepreneurial circles; the requisites for proper economic estimates are often lacking; and the existence of factors that distort the relative prices of labour and capital is conducive to the choice of unsuitable techniques (this last point will be discussed later).

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[29] Detailed information on these points will be found in the sectoral analyses (of the iron and steel, chemical, and pulp and paper industries) supporting the present preliminary study.

It would be unreasonable to suppose that this type of distortion of entrepreneurial decisions could account to any large extent for the volume of unemployment or for the inadequate manpower absorption capacity of manufacturing industry in the Latin American countries. At best, the margin of substitution of labour for capital, even if the various distortions and other obstacles to appropriate decisions were removed, would probably never be large enough to weight the scales appreciably in favour of a full employment policy. On the other hand, the adoption of economic decisions would do much to improve rates of return in the branches of industry mentioned; and that certainly would make an indirect contribution to solving the employment problem, through the improvement of capital formation at the level of the enterprise (and therefore in the economy), and the raising of the capital-output ratio in some branches of industry (and ultimately in the economy as a whole). Thus, by helping to speed up the rate of development of the manufacturing sector and of the economy at large, the selection of more suitable production techniques would do something to alleviate the region's employment problems.

Another factor of great practical significance to be considered in this context is the impact of the industrial promotion policies and procedures applied in most of the Latin American countries. In relation to the channelling of investment and the selection of production techniques and equipment, they constitute a powerful economic incentive to the use of capital, with the correlative discouragement of increased use of labour. In recent years, industrial policy in Latin America has been based to a growing extent on the granting of tax exemptions and investment subsidies, which in practice give the calculation of rates of return a bias in favour of alternatives representing higher levels of capital formation. Other measures, such as tariff exemptions for imports of capital goods, lead to the same result. Lastly, in so far as the market prices of the factors of production diverge from the corresponding break-even prices, a similar influence is exerted by the procedures responsible for this distortion. Cases in point are the practices of charging relatively low rates of interest on industrial credits (besides pegging down the amounts repayable to the original figure, in environments where inflation prevails), and setting the wage levels for the different internal regions of a country without regard for their stage of development and the productive resources with which they are endowed.

All these factors make for the establishment of structures of production that restrict employment opportunities and encourage over-investment.

Consideration must therefore be given to the question of autonomous technological development, achieved basically in the Latin American countries themselves and therefore independently of the determinants in force in the industrialized regions of the world, which are out of line with the requirements of the Latin American economies. Clearly, what is of concern here is not the desirability of this type of development, which may be taken for granted, but its viability, in the conditions prevailing in the world of today.

No one who is acquainted with the structural weakness of scientific and applied research in Latin America, its traditional lack of contact with industrial circles (even in the countries where most progress has been made in this respect), and official heedlessness of the role of research in national development in all the

Latin American countries, can regard the prospect of such autonomy—whether complete or at least partial, or confined to certain branches of pure or applied science—as anything but a Utopian dream. Its impracticability is enhanced by the world picture in respect of the trading of technology. Technological dependence is not confined to the developing countries, but is typical first and foremost of the developed countries themselves. The exchange of information on technology that they keep up with one another is incomparably more intensive than their contacts in this field with the underdeveloped world, and, in addition, their interdependence extends to all the industrialized countries without exception. Not one of them stands out as the undisputed hub or fulcrum of the world technological system.

The balance of payments under the head of transfer of technology confirms that all the industrialized countries, including the United States, are heavily dependent upon imports of technical know-how. Even a country so highly industrialized and with so noteworthy a tradition of technological inventiveness as the Federal Republic of Germany shows only a slight surplus on its balance of income and expenditure in respect of technology.

Corroborative evidence, moreover, is afforded by the absence of any correlation between the proportion of the gross product absorbed by public and private expenditure on technological research and the rate of expansion of the gross domestic product. The United Kingdom and the United States, which are the two countries whose proportion of research expenditure is highest, are precisely those whose growth rate has been most moderate since the Second World War; whereas France, Italy and Japan, which have developed appreciably faster, earmark much smaller proportions of their domestic product for pure and applied research, largely basing their industrial development on imported technical know-how and the reproduction of established technologies.

A twofold conclusion may perhaps be drawn in this connexion. A considerable degree of dependence is inevitable, and is not intrinsically an obstacle to the attainment of higher rates of development than Latin America has achieved in the recent past, but the efficacy of this dependence is influenced, probably decisively, by whether the region has or has not a relatively high level of technological research of its own, directed specifically towards facilitating the adaptation of production techniques and processes to local conditions. It is the non-existence of this middle way of technological research in Latin America that intensifies the negative aspects of dependence and vitiates its positive features, saddling it with the fallacious reputation of a hindrance to the acceleration of Latin America's industrial development.

To sum up, the following are the views set forth in the successive paragraphs of the present section:

(*a*) Roughly speaking, an economy's manpower absorption capacity is determined by the over-all rate of development and by the proportions of the factors of production used in the application of efficient techniques. Separate consideration of each of these determinants suggests that development in the coming decade will probably be more strongly influenced by the former than by the latter. In other words, from the standpoint of the orientation of economic policy, it is more important to try to raise the over-all rate of development (growth rate of the product) than to attempt to influence manpower absorption capacity directly, through selection of more labour-intensive processes and equipment, promotion of small-scale industries, etc.;

(*b*) The foregoing conclusion is partly based on the conviction that in the world of today the technical alternatives open to industrial policy in the developing countries in general, and those of Latin America in particular, offer only a very limited field for manoeuvre. Some of the different facets of this question have been briefly touched upon;

(*c*) The selection of techniques with a view to increased use of manpower—where feasible—seems more potent as an instrument of indirect action, through the saving of capital it makes possible, than by virtue of its direct impact through the use of labour-intensive processes and equipment. Given the same rate of capital formation, the selection of appropriate techniques will enable the economy to grow faster, through the improvement of the capital-output ratio in several branches of industry. This appears to be the most important facet of the problem of alternative techniques and employment to be taken into account in the strategy for the second Development Decade.

5. Financing of industrial expansion and efficiency and productivity of industrial activities

The obstacles and stumbling-blocks to industrial development in Latin America which derive from financing problems are many and complex, but for the purposes of the present diagnostic outline they may be reduced to a few essential questions and summed up in an account of the difficulties attendant upon the expansion of basic industries.

The growth of those branches of industry which are of key importance for the acceleration of development—production of industrial raw materials based on the processing of natural resources, semi-manufactures and capital goods—is generally slowed up by the inadequacy of capital formation in the sectors concerned. This handicap is further aggravated by two other factors. One of these is the difficulty of attracting capital from other branches of industry (because of the weakness or virtual non-existence of national capital markets) or from abroad (owing to the inaccessibility of the international official capital market). The other is the existence of obstacles to the absorption of direct foreign investment (or in the recognition of drawbacks to this solution).

Hence three major categories of problems can be identified, relating to self-financing in industry, capital markets as a source of long-term financing, and the policy pursued with respect to foreign capital. These will now be discussed in turn.

To take first the question of capacity for capital formation in the industrial sectors themselves, its close relation to what is known as the self-financing of industry must be underlined.

To judge from the limited background data available, the average figures for capitalization of undistributed profits, or self-financing, in industry are generally lower in Latin America than in the developed countries, and in all likelihood the disparities are even greater in the branches of industry with a broader technological base and a higher rate of expansion. Furthermore, the disadvantage at which Latin America is placed in this respect is probably more marked than is apparent from the figures in question. Factual data (amplified by experience) shows that the sums earmarked for depreciation are extremely small in Latin America, owing to the application of a tax policy which many countries have maintained for a long time without attempt to adjust it to the prevailing inflationary processes. As a result, a large proportion of the funds on which self-financing should be based have really been raided to make up the shortfall in the depreciation reserve, which means that the reinvestment of profits as a source of financing of industrial expansion is on a still more modest scale in Latin American industry. As an average order of magnitude for industry as a whole, self-financing may be said to represent from 10 to 20 per cent of total sources of funds in the Latin American countries, as compared with 30 per cent in United States industry.

Since the foregoing figures are averages for industry as a whole, in the case of Latin America they probably mask significant variations from one branch of industry to another. Rates of return and proportions of self-financing are much higher in the current and durable consumer goods industries than in those manufacturing industrial raw materials and capital goods. The sectoral analyses relating to steel-making and the chemical industry reliably bear out this assertion.

One possible way of offsetting the inadequacy of internal capital formation in given branches of industry is to effect transfers of funds from other sectors through the long-term capital market or through the negotiation of external loans. What is Latin America's position in this respect?

The extent to which the region has had recourse to capital markets has diminished rather than increased in recent years. Persistent inflation has impeded the activities of these markets with respect to the issue of debentures; and the extreme slowness with which the family type of enterprise is being replaced by modern corporative patterns holds up the issue of stocks and shares in their various forms.

The first aspect of the paralysing effects of inflation on the long-term capital markets was mentioned earlier, and no further arguments need be adduced. All that need be stressed is the importance of the capital market in a market economy, for the purpose of ensuring the constant distribution of capital resources throughout the economy. It has a key role to play in the reallocation of resources on lines that will make for greater rationality and economic efficiency because self-financing will be confined to cases in which the expansion of the enterprise that generated the capital is economically justifiable. In view of the non-existence of alternative possibilities for the productive use of resources, which at the same time represent a safeguard against the corroding effects of inflation, enterprises are often driven to reinvest their profits time after time in the same industrial operation, irrespective of the economic justifiability of this procedure.

A factor thus comes into being which in many countries (in particular, those in which investment opportunities are less diversified) determines the wide margins of over-investment, or, alternatively, under-utilization of capacity, that are found in many branches of industry.

Another important issue concerns the interrelationships between the capital market, self-financing and the need to resort to foreign investment. Low rates of return, by reducing self-financing, lead to increased dependence on capital from abroad. But if there were an active long-term capital market, based on genuine monetary stability, rates of return too low to sustain self-financing would not necessarily be a barrier to the expansion of the enterprise, since it would then be able to sell shares or debentures on the market. The drawbacks deriving from excessive dependence on direct foreign investment in some branches of industry would thus be obviated.

The problem of the family-based structure of most Latin American enterprises—including a high proportion of the larger-scale undertakings engaged in branches of manufacturing with a substantial technical content—will be discussed in the following section, in which the need to strengthen the Latin American enterprise is analysed.

The next step, therefore, is to devote brief consideration to the last of the three categories of problems listed at the beginning of the present section, namely, foreign capital.

As was shown in the relevant section of the preceding chapter, during the nineteen-sixties the use of foreign loans to finance industrial development projects has accounted for a very modest proportion of Latin America's total borrowing, and has, moreover, followed a downward trend in recent years, which will probably continue and even sharpen as the result of certain tendencies that have become apparent of late.

One of these is a marked tendency to reduce the amount and coverage of external aid and which means that in the future it will become increasingly necessary to resort to commercial or bank loans instead of "soft" credits for the financing of Latin America's industrial development.

The cost of commercial loans is appreciably greater, not only by their very nature, but also because of the present situation of the world's capital markets. Hence it must be asked whether the rates of return of Latin American industry will be high enough to defray the cost of this type of loan.

In order to answer this question, which covers such a wide variety of factors, it would be necessary to have much fuller information than was available when this study was being drafted.

Other aspects of the problem of industrial financing, in particular those connected with direct foreign investment, will be briefly discussed in the next section, which deals with the Latin American enterprise.

6. The Latin American enterprise and technical modernization requirements

The strengthening of the Latin American enterprise must be the cornerstone of any organized effort to speed up the rate of development in the countries of the region. To this end, a set of special measures which will enable it to survive and flourish in face of foreign competition must be devised and applied with energy and foresight. To do this effectively, without jeopardizing the external co-operation which Latin America cannot dispense with, is a complex objective, perhaps one of the most difficult to crystallize in the whole body of provisions whereby economic policy should seek to imbue the region's development with fresh vigour during the coming decade. For if measures to strengthen the position of the local entrepreneur were applied on a purely defensive basis, their effect would be to intensify the isolation of the Latin American economies and thus aggravate the problems deriving from want of the spur of competition and from the widening technological gap.

The requirements which the Latin American enterprise will have to meet are those dictated by the following factors:

(*a*) Internal and external competition;

(*b*) Technological innovations;

(*c*) Continuing external co-operation in respect of both capital and technology.

The ability to compete on foreign markets is an indispensable requisite in so far as the changes in the structure of production, which accompany the advance of industrialization, enable a start to be made on exporting manufactures either to intra-regional or to extra-regional markets, but in both cases in competition with a great many producers. And the introduction of the new processes and products that are the fruit of technical progress calls for highly specific technological aptitudes and sound financing. Moreover, external co-operation, especially when it takes the form of direct investment, appears to be playing a "dominating" role only when there are no local firms technically competent and financially solvent enough for it to enter into association with them.

Competition, technical innovations and external co-operation in the fields of financing and technology require the Latin American enterprise to fulfil certain conditions, particularly in the following respects:

(*a*) Size;

(*b*) Readiness to expand and innovate;

(*c*) Ability to compete on the basis of decreasing costs and prices;

(*d*) Financial stability and flexibility.

As regards size, the weakness of the Latin American enterprise betrays itself in two major symptoms. In the first place, there is too high a proportion of artisan-type establishments with pre-factory characteristics. Technically they are very backward, and they have no practical possibilities of progressively acquiring the character of modern factory industries. The existence of an artisan-type stratum, varying in size according to the sector concerned and the industrial milieu, is a universal feature in most branches of industry (not merely those producing consumer goods). It may be attributable either to the fact that demand for certain products with special characteristics is too limited to warrant mass production as in modern industry, or to factors of geographical location. What is peculiar to Latin America is not the presence of artisan-type industry, but the disproportionate size of the stratum in question, as can be seen from the relevant figures in the preceding chapter. The root causes of this state of affairs are probably to be found in the weakness of non-artisan industry in the same branches of activity, which lacks sufficient drive to compete with small-scale producers, despite the extremely primitive conditions in which the latter operate.

Even in the factory stratum, moreover, enterprise and plant sizes often fall short of the scale that would be economic given the technology in current use. In this respect Latin American enterprises are probably going from bad to worse, since in many branches of industry the effect of technological advances is a progressive increase in the maximum capacity of the basic processing units that is technically feasible, and this in turn causes shifts in optimum and minimum economic capacities. Cases in point are afforded by many branches of the chemical industry, especially those producing petrochemicals, in which economic scales have doubled in the past ten years. The same trend is likely to continue during the nineteen seventies.

Again, readiness to expand and innovate is not one of the strong points of the Latin American enterprise. Nor is this surprising, in view of the competitive isolation in which enterprises in the region have had to develop. Their family-based structure in respect of the ownership of capital and the assumption of the functions of direction and management has slowed up their rate of growth in many cases. Under the family ownership system, recourse is frequently had to self-financing; accordingly, the rate of expansion of the enterprise is kept down to the slow pace of the self-financing process, which, as has been seen, is a good deal lower in Latin America, on an average, than in the industries of the United States and Western Europe.

The capacity to compete in respect of prices, which is a prime mover of industrial progress, presupposes the capacity to sustain, within the enterprise, a steady reduction of costs through investment in modernization and improvements and—no less important—through the constant overhauling of the methods of management, administration and operational organization applied. Dynamic evolution of this sort is hampered in the case of the Latin American enterprise not only by the "closed" type of company it represents (a pattern which is, moreover, perpetuated by the virtual non-existence of capital markets), but also, up to a point by the shortage of professionally trained administrative cadres and the frequently unsatisfactory situation as regards skilled labour. The picture of the difficulties of adaptation to competitive conditions would not, of course, be complete without reference to the obstructive effect of the use of protection as the primary instrument of industrial development.

Lastly, the financial difficulties besetting the Latin American enterprise stem from the inadequacy of the support obtainable from the Bank system and from the capital market, which means that financing possibilities are very slight in respect of working capital and medium-term capital requirements (relating, for instance, to the production of capital goods for export). These handicaps particularly affect the capacity to make innovations or to explore new markets.

The structural deficiencies of the Latin American enterprise are, of course, the product of the difficulties with which it has been faced and the obstacles it has had to overcome in order to gain and keep a foothold in an economic environment not altogether favourable to its establishment and survival, or at least not favourable to the development of production units in line with the requirements of the world of today.

A cursory account of some of these obstacles is given below.

Mention must first be made of the frequent existence of substantial external diseconomies. The inadequacy of public utilities lays a heavy burden on the enterprise, which often has to build roads, pave streets, explore and develop resources in order to obtain its own supplies of water or electric power, train its own skilled workers, organize a system of communications of its own to take the place of postal, telegraph and telephone services which are to all intents and purposes non-existent, build housing units for its personnel, lay its own branch railway lines or sidings, or maintain unduly large stocks of raw materials as a precaution against the irregularity of public transport services. The resulting surcharges on investment and operational costs are extremely heavy, and in addition there are the no less important indirect consequences consisting in the disruption of operations and in the fact that the management is obliged to devote time and energy to matters which should really have no claim on its attention.

Secondly, the enterprise is virtually unsupported by any institutional infrastructure—such as commonly exists in the industrialized countries—consisting in entrepreneurs' or workers' associations, or State or joint public and private organizations, to which the enterprise could always resort for the solution of its operational problems and to raise its levels of efficiency and productivity. It could obtain help from them in relation to analyses of market trends and studies of new products, new production processes and new raw materials; in the field of industrial advisory services; in matters of internal organization; and so forth. The region's institutional deficiencies in these respects deprive the enterprise of powerful external instruments for increasing its dynamic vigour. It is dependent upon itself, upon its own resources and its own motivations, for all or most of the mainsprings of improvement and progress that in the industrialized countries are largely provided by the external environment.

Thirdly, there are sometimes very strong incentives to the adoption of a pre-eminently commercial and speculative line of action, at the expense of the economic and technical activities of the firm. Tendencies of this kind, which have their origin in the social and professional background of certain entrepreneurial groups, instead of being frowned upon by official policies are actually encouraged by the very instability and vagueness of the policies in question, as well as by the chronic inflationary processes prevailing in many countries.

Fourthly, mention may be made of a major financing difficulty: the lack of a capital market through which savings could be distributed in accordance with growth requirements and aptitudes in the different sectors of the economy, so that sectoral development could be freed from dependence upon each sector's capacity for self-financing, and upon a bank system and credit and financing procedures that are anachronistic from the standpoint of a modern industrial economy.

Lastly comes the whole vast and diversified problem of the unwisdom of national economic policies in many vital respects. To cite a simple example, policies relating to major investment projects (and to foreign investment) make for the proliferation of similar undertakings and the splitting-up of scales of production, as a precaution against the establishment of monopolies. They overlook the advantages of economies of scale and the possibilities of defending the interests of the consumer and of the national economy by administrative measures, such as are widely applied in other regions. Nor do they take into account the many drawbacks attaching to a prolonged period of indecision regarding major projects, or to the want of appropriate criteria for settling the question of private enterprise versus public enterprise. Moreover, in this last connexion there is often a tendency to state the problem in terms of ideological options or immutable principles of economic policy, with no explicit reference to what ought to be a matter of vital concern, namely, the efficiency and productivity of the enterprise, which may weight the scales in favour of public or of private enterprise, according to the special circumstances prevailing in the industrial milieu and in the branch of manufacturing in question.

It would be out of place here to dwell on this last issue, which is one of the most difficult in the field of Latin America's industrial development. The present aim is merely to suggest the need for it to be discussed—and the relevant economic policy measures adopted—in a broader frame of reference than hitherto, with due regard to such questions as the following. If in the past the economic and social environment of a given Latin American country has been unable to breed generations of entrepreneurs in sufficient numbers and of the requisite quality, are there legitimate grounds for inferring that it will also be unable to produce them in the future? And can this eventuality reasonably be discussed without at the same time taking into account the establishment of conditions favourable to such a blossoming of entrepreneurial talent? Such conditions do not relate solely, or even primarily, to rates of profit, but to motivation and operational efficiency. Again, will the conditions necessary for the formation of efficient managers of public enterprises be very different from those required in the private sector?

Lastly, mention must be made of yet one more of the obstacles that the Latin American enterprise has to surmount in order to survive and develop. Nowadays, requisites for the incorporation of new enterprises and new entrepreneurs are much more exigent than they were in the past, when today's developed countries took their first steps along the road to industrialization. The respects in which these increased difficulties are encountered may include the economic size of the enterprise, investment per worker, the level of technical qualifications required for entrepreneurship, or the small-scale enterprise's possibilities of growing into a medium-sized or large concern.

Along what general lines should action be taken to remove the above-mentioned obstacles and enable the Latin American enterprise to be progressively strengthened? In the light of the list of handicaps given in the preceding paragraphs the appropriate measures can easily be identified, so that it will be enough to sum them up briefly and in broad outline.

In the first place, perhaps the aspect of the problem with the greatest practical importance is the necessity of increasing stability and continuity in national economic policies that affect the enterprise and influence its line of conduct in respect of costs and investment, so that it can broaden its economic planning outlook. In addition, clearly defined policies should be perseveringly applied to maintain an adequate degree of internal and external monetary stability. A supplementary requirement is that national economic policies should be designed and implemented in such a way as to counteract and eliminate as fully as possible the impulses towards instability which have their origin in the external sector of economy.

Secondly, public and private investment should be more closely co-ordinated, so that the former may help to create the external economies on which the improvement of investment efficiency and productivity is, in no small measure, dependent.

Moreover, unremitting efforts should be made to organize an up-to-date and efficacious finance and credit structure, adapted to the needs of a manufacturing industry which is growing in size and complexity.

Another urgent need is for enterprises, through the industrialists' associations and State, to join forces in systematically establishing the indispensable institutional infrastructure for technological research, industrial extension services, advisory assistance in the various fields of industrial activity, etc.

Lastly, with regard to foreign capital, the appropriate path to take would seem to be the promulgation of measures to encourage forms of partnership between foreign investors and local enterprise. This line of policy, however, will be effective only in so far as other measures, designed to strengthen the internal and organizational structures of the Latin American enterprise, are gradually applied with successful results. Little can be expected of formulas for association and co-operation between partners whose degrees of economic and financial stability differs too widely. The same condition holds good as a requisite for more frequent and more intensive recourse to licences to manufacture and know-how agreements in general as a mechanism for the transfer of technology as an alternative to direct foreign investment. Experience has shown that it is difficult for technology from abroad to be effectively assimilated when the technical level of the recipient enterprise is much lower than that of the firm granting the licence to manufacture. In other words, the separation of the contribution of capital from the contribution of techniques is a problem which can be only partly tackled by means of international co-operation formulas to reduce the costs and increase the operational flexibility of royalty agreements. There is still the difficulty of the capacity to assimilate technical innovations from abroad on the basis of this procedure.

7. Problems relating to regional integration and progressive opening of markets to foreign competition

The conviction was voiced in earlier paragraphs that although the liberalization programme has generated trade flows in industrial products, and has thus promoted the expansion or installation of industrial capacity, its effects have fallen far short of the expectations formed at the time when the Free Trade Area and its instruments were established. From the very outset, LAFTA has always been regarded as an agency whose objectives transcended the bounds of trade liberalization. The intention that it should be an instrument of over-all development and even specifically of industrial growth was present from the start, becoming more and more explicit and taking an increasingly important place in every formula devised by the Area for the fulfilment of its objectives.

The point to be emphasized here is that the liberalization programme has basically served to promote an industrial trade whose modest volume does not deprive it of significance for the traditionally inward-directed Latin American economies, but it has had no major impact on their development processes. The contribution made by trade in manufactures—which has not acquired much relative importance within the Area's over-all trade—may well be described as marginal where its incidence on the corresponding industrial development processes is concerned.

Something has already been said of the causes to which this weakness may be ascribed. In many cases it is attributable to the reversibility of the concessions granted, which prevents them from providing a firm basis for steady trade. However, while on the one hand this same factor appears to be responsible for the unsatisfactory rate of progress achieved through specific mechanisms (national schedules), on the other hand its opposite—irreversibility—arouses antagonism in the interested sectors in the various countries and thus stands in the way of the advances that might be made by means of instruments (the Common Schedule and complementarity agreements) which incorporate the element of irrevocability.

It was highly unlikely that the assignment of leading role to the liberalization of trade would enable a genuine integration of development processes to be achieved. Such a belief implied the assumption that if tariff barriers were lifted and trade left to the relatively free interplay of economic forces, investors would be induced to take advantage of the opportunities afforded by the trade thus liberalized. Obstructive attitudes and other stumbling-blocks are numerous and in many cases justifiable. For example, how can markets be opened to competitive imports without making sure that the basic inputs for the two competing industries will enjoy the same treatment, or that official incentives to the installation of foreign enterprises will be proportionate to one another?

These problems, together with the essentially static character of the liberalization programme (including complementarity agreements, which served solely as an additional avenue of approach to the establishment of schedules) led LAFTA to consider what is commonly referred to as a regional investment policy, and a programme for the co-ordination of economic and trade policies and the harmonization of instruments to regulate foreign trade, as the factors which might impart dynamic impetus to the integration process. These were the ideas underlying LAFTA resolution 100, in which the concept of programmed location of industries of a regional character was adopted. The resolution explicitly stated that the objective of the programme should be equitable distribution of the benefits of integration, and stipulated that the measures and incentives to be applied should be all those capable of influencing an industrial integration process, not merely those deriving from trade policy.

Furthermore, the conviction that it is all but impossible to advance along the road to integration unless policies are co-ordinated and instruments harmonized, and unless national development programmes are likewise co-ordinated, is also prompting activities in all these spheres. The field in which the greatest relative progress has been made is probably that of research on the possibility of a common external tariff. The stage of collecting data by means of a sample survey has just been embarked upon. Here, too, it will be difficult to make headway unless Governments previously adopt certain decisions (for instance, as to what industries should be protected and how far protection should be carried, relations with the establishment of the exchange rate, etc.). In this case, as in other instances where policies have to be co-ordinated or instruments harmonized, it is precisely the vagueness and the lacunae of the national policies themselves that constitute the stumbling-block.

Resolutions 99 and 100 aroused great expectations in the possibility of substantial progress in the field of industrial integration, laying the major responsibility for its achievement on the study groups and on the Advisory Commission on Industrial Development (CADI), which were to draft specific formulas for integration by sectors, with the aid of the new régime for complementarity agreements established under the terms of resolution 99. Resolution 100 also recommends that due heed be paid to the importance of ratifying sectoral integration studies by a policy decision of the contracting parties, so that their conclusions can be rapidly implemented.

Alongside this new means of attaining industrial integration objectives which it was desired to place at the disposal of the Latin American countries, another parallel procedure continued in operation. It found expression, in several complementarity agreements (already signed, or in process of negotiation) whose provisions followed the trend described above. Whereas at first they merely established tariff concessions which were incorporated in the national schedule and were extended to all parties, after the adoption of resolution 99, their extension was no longer automatic, and other provisions began to be introduced, such as the commitment to harmonize treatment of third countries in the future. At the same time much longer lists of products were included.

In these lines of action, too, the headway made has been insignificant. Neither the complementarity agreements already signed,[30] nor the other agreements, including those currently in process of negotiation, will make any essential difference to this state of stagnation. It is not merely that their contribution, although increasing, will continue to be slight in quantitative terms; in addition, the proliferation of such agreements, to which as a rule only some of the countries of the region are parties, is unlikely for that very reason to prove the most appropriate method of attaining the objectives in view.

The activities of CADI have constituted another aspect of the industrial integration movement. In their initial phase, as was fully described in the preceding chapter, integration formulas were proposed for two sectors, i.e., the petrochemical industry and steelmaking, although in the latter case the scope of the formulas was a good deal more limited.

The lack of progress towards integration in conformity with the recommendations of resolutions 99 and 100 has been imputed to causes falling into two categories. One of these might be termed the institutional deficiencies of the Montevideo Treaty, of LAFTA resolutions 99 and 100 and, in general, of the whole juridical structure of LAFTA. They are inadequate to deal with complementarity agreements incorporating specific commitments to promote a given industrial activity, particularly as regards official supervision of their implementation, and investment in technical assistance programmes to foster or reactivate changes in existing industries.

In this connexion, it should be pointed out that for the implementation of the petrochemical complementarity agreement recently concerted between several Latin American countries (Bolivia, Chile, Colombia and Peru), not only the administrative agency envisaged in the provisions of the agreement will be available but in addition the Andean Development Corporation (Corporación Andina de Fomento), which in this case will supply the lack referred to above.

The second category of causes, which may perhaps account for the failure of the integration formulas discussed by CADI, especially for the petrochemical sector, likewise relates to another deficiency: the incapacity of the said formulas to dispel the misgivings—many of them well-founded—with which the Governments approached these negotiations. The indecision or lack of drive in policy-making, which has so often been mentioned, reflects the Governments' inability to abandon existing industries to their fate, to subject them to competition for which they are not prepared, or even to relinquish projects whose benefits seem much more immediate and concrete than those offered by integration formulas. As regards this official attitude to the industries already installed (which in the larger countries and several of those of medium size include virtually all or the great majority of manufacturing activities), it should not be forgotten that the capacity of the structures of production in Latin America to undergo and absorb changes is relatively slight, and in any case far less than that of European industry, for example. In Europe it was possible to rely upon the capacity of the corresponding structures for what might be designated "peaceful" change under the impact of competition, in view of the major role played by technological innovation in the economies in question, the higher level of qualifications in their entrepreneurial sectors, and a whole series of factors relating to technical and industrial infrastructure which facilitate the absorption of the shocks of competition and their conversion into dynamic forces. Several of these elements are lacking, in greater or lesser degree, in the developing economies. The whole undertaking is inevitably difficult and hazardous, and attended by considerable risks. It would therefore seem essential that in the Latin American countries the entire set of remedial measures should be designed to prepare the structure of production for the necessary—in fact, indispensable—changes. To this end sectoral agreements must be concluded on broader bases, as will be suggested later.

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[30] The petrochemical agreement (No. 6) includes features which clearly distinguish it from the other agreements signed, such as reciprocal reservation of markets, establishment of a common external tariff, regulation of competition (anti-dumping procedures), etc. Some apprehensions are felt lest the provisions for regulating competition may be incompatible with the intention that the agreement should operate at competitive levels. Nevertheless, when all factors have been taken into account, this agreement is felt to represent a definite step forward.

Hence proposals for integration formulas should comprise, in addition to the development and liberalization programme itself, provisions designed to maximize the viability of the said formulas in each individual country. In this connexion it is a *sine qua non* to include clauses which take into account the obstacles in the way of a more resolute approach to integration processes. The aim of such clauses would be not only to establish programmes of corrective measures whereby the negative effects of integration (closing-down of industrial establishments, etc.) could be lessened, but also to take advantage of the opportunity to promote the reorganization of industry on the basis of a dynamic approach to the task of fitting the Latin American enterprise in terms of scales and efficiency of production, etc. to compete with the great international corporations.

As can be seen from the foregoing paragraphs, since the adoption of resolutions 99 and 100 the procedure adopted for tackling industrial integration problems has been to envisage solutions in the framework of the various industrial sectors considered. This *modus operandi* has inadvertently encouraged, in many instances, expectations of a balance of benefits within each sector for all countries.

It would seem that any attempt to deal with the problem of the balance of benefits which implies their measurement, whatever the variable chosen (contribution to the gross product, expansion of consumption or of investment, etc.), will set up obstacles that may prove insurmountable. This is partly because, in the economic and social development conditions that characterize developing countries, a very substantial proportion of the benefits in question take forms that can hardly be measured. For instance, they may consist in the creation of external economies, in the fulfilment of conditions of material complementarity indispensable for the development of certain other industries, or in the promotion of balanced growth between internal regions in the participating countries. Naturally, this does not preclude the possibility that each of the countries in question may undertake an evaluation of the benefits it will gain from participation in the integration process, within the framework of its own economic and social development programming; it merely means that evaluations of this kind are very difficult to express in quantitative terms in such a way that comparisons can be drawn with countries which attach some quantitative significance to the term "balance of benefits".

In earlier paragraphs, in the context of a critical appraisal of integration programmes which place emphasis on what can only constitute a preparatory phase—the negotiation of tariff concessions—this approach was described as static, since it took for granted that the market mechanisms and forces in operation would have sufficient dynamic energy to generate trade in manufactured goods which would be a decisive factor in the reactivation of the industrial sectors concerned.

It was also pointed out that in economies like those of the Latin American countries—all of them in process of development, but currently at widely differing stages, and traditionally characterized by very little intercommunication—events have confirmed the obvious inadequacy of such trade incentives pure and simple as spurs to the attainment of the integrationist objectives pursued.

Something similar has happened in the case of national efforts to promote exports of manufactures. The countries of the region have approached the task from two standpoints. On the supply side, they have gradually built up a whole institutional apparatus designed to support and encourage industrial exports, through customs, tax, fiscal, credit, technical assistance and other measures. On the demand side, they have concentrated their attention on the efforts they are making, together with the rest of the developing world, in the various international forums and especially in UNCTAD, to secure favourable conditions of access to the markets of the industrialized countries, in the form of general non-discriminatory and non-reciprocal preferences.

There is nothing to object to in this approach as regards either the national measures adopted or the efforts that are being made at the international level. In both cases, the general guiding principles followed are conducive either to the establishment of favourable conditions or to the removal of obstacles so as to make it possible to step up the flow of industrial exports considerably.

The deficiencies or lacunae in these lines of action appear mainly in connexion with two very closely related categories of problems. The first of these derives from the scant importance attached to the promotion of supply. It would have been desirable for each actual or potential exporter country to try to determine what products could be exported, in what quantities, and to what markets of destination, what difficulties were encountered on the production and the sales side—in short, for export programmes to be drawn up, which might even have indicated the international co-operation needed for the attainment of the targets established.

Once again (and herein lies the analogy with the modes of action selected for the fulfilment of industrial integration aims), not enough has been done to establish a steady flow of exports of manufactures, too many hopes having perhaps been pinned on the possibility of entering the industrial countries' markets. There has been a certain tendency for the developing countries to devote the bulk of their efforts to securing this improvement in the demand situation, without adopting an integrated industrial export policy designed to link up supply and demand by means of institutional formulas which might effectively serve to establish mutually beneficial conditions. The developed countries might well grant the concessions urged by the developing countries for a short time, on an experimental basis, and after this observation period the meagre results obtained with regard to the use of the concessions by the developing countries might undermine the whole of the hard-won arrangement.

Thus there is a danger that once the long-pursued objective of the opening-up of the industrialized countries' markets had been attained, the expected benefits might not materialize for want of promotion on the supply side. More specifically, the Latin American countries might be unable to take advantage of the sales opportunities thus guaranteed, for the following reasons: they did not possess the necessary exportable surpluses; their costs were very high; the specifications of the products concerned were not in line with world market requirements and quality controls and packing were unsatisfactory; or, with the exception of a few modern enterprises which are subsidiaries of foreign firms, the organization of other concerns is not adequate to ensure that external sales are a profitable operation.

This list of lacunae or deficiencies on the supply side should be taken as a broad generalization with regard to its applicability to the countries of the region. Many of them are aware of the problem and in several of those that have acquired more experience in exporting industrial products, measures have been adopted to counteract the shortcomings in question.

The fact that countries do too little to promote supply is only one aspect of the problem under consideration. The other is represented by the want of linkage between the efforts made at each end of the potential export flow, through mechanisms such as national export programmes prepared by the developing countries, which would include proposals for the international co-operation required in order to meet the targets established, and even for the tariff concessions considered necessary (all on the lines set forth in the relevant section of chapter IV). There is obviously an interaction between the chances of obtaining specific concessions and the possibilities of their more efficient utilization.

This does not of course mean that there is not a broad field for action in the system of promotional measures already tried out by some countries. Even in these, there are features of the system—such as insurance of export and pre-embarkation credits—which call for further analyses and adjustments to improve their operation. In many countries, hardly any headway has been made with such programmes of support measures, and it is therefore essential that governments should provide the usual customs, tax, credit, institutional and other incentives.

Thus, the preceding paragraphs bring to light some of the shortcomings in the methods adopted to further integration and open up markets to external competition. At the same time it is suggested that the new proposals formulated for the achievement of progress in these fields must necessarily contain elements designed to maximize their viability, since on many occasions the handicaps and weaknesses inherent in economies like those of Latin America make the instruments or formulas in question, however intrinsically right and appropriate, insufficient for the attainment of the objectives pursued.

Chapter III

THE INSTRUMENTS OF INDUSTRIAL DEVELOPMENT POLICY

1. General industrial policy measures

There has perhaps been no goal in Latin American development in recent decades that has been publicized and popularized as much as industrialization, and yet there are few goals in respect of which action has been so diverse.

The sudden frustration of the consumption aspirations of the middle strata of the population—the strata whose demand is most significant, both in quantity and in quality—during the period beginning with the onset of the depression in 1930 gave an unexpected impetus to the need to achieve higher levels of industrial development. It became necessary to satisfy demand that suddenly could not be met, and domestic production began to fill the gaps left by imports, although with differences in quality and cost which were both inevitable and justifiable at the time. While private enterprise directed its efforts in the main towards the production of consumer goods, State activities were concentrated on a few large-scale projects to improve the infrastructure or to establish basic industries and on protecting domestic production from the renewed pressure of foreign competition by means of tariffs.

Indiscriminate and unrestricted protectionism, which enabled many enterprises to continue operation at a low level of efficiency and with high costs, or allowed some enterprises to take advantage of their monopoly position with adverse effects on other branches of domestic production, involved social costs which, while perhaps justifiable in the early stages of industrialization, subsequently tended to impede development, and it became necessary to reduce tariff protection to reasonable levels.

Perhaps excessive reliance on protectionist measures, prompted mainly by their substantial initial effect, explains why other measures with similar effect were not adopted later when changing circumstances made them necessary.

Admittedly, several mechanisms were tried but, although practice varied greatly from country to country, in general this was done without sufficient co-ordination or continuity. Often, overall economic policy measures had aims which were at variance with those of the industrial sector and had unforeseen indirect effects on industrial development which were seldom analysed after the event with a view to keeping their consequences within bounds.

For example, exchange policy was usually directed towards solving balance-of-payments problems and providing special incentives for the major exporters of primary commodities, regardless of the effect upon industry of an increase in the cost of imported inputs, or of the even more difficult financial problem it caused entrepreneurs who had purchased machinery and equipment with external suppliers' credits. Similarly, tax policy was mainly aimed at producing revenue, more thought being given to the potential yield of taxation than to its effects on the productive process.

Within these broad and varying guidelines, some policy measures designed specifically for the industrial sector have formed the framework within which industry has developed over the past twenty years.

In the first place, the machinery for protection, i.e., tariff mechanisms and import licences and authorizations, began to be used more and more selectively, in so far as was possible, as a reaction to some of its adverse effects on industrial development. Frequent changes have been made in customs tariffs and other similar mechanisms, especially in the countries that have achieved a relatively advanced stage of industrialization and that have had to ensure a high degree of protection for capital goods. In Mexico, for example, customs tariffs were substantially modified in 1951, 1954, 1955, 1961 and 1965, the last being a year in which new import controls were placed first on goods whose domestic price was not more than 25 per cent higher than the international price. In Brazil, the Customs Tariff Act of 1957 set up a customs policy board and authorized it to adjust tariffs periodically to promote the development of certain industries. The new customs tariff in Colombia, which dates from 1965, may be modified by a customs policy board, subject to the authorization of other bodies, up to a ceiling of 30 per cent of the c.i.f. value of the goods concerned. The changes in customs nomenclature in Argentina in December 1965, and in Chile in December 1967, the main aim of which was to bring nomenclature into line with the LAFTA Tariff Nomenclature (NABALALC), were also used to revise tariffs with a view to rationalizing the system of protection.

Despite these changes, it has not proved possible to endow tariff mechanisms with sufficient flexibility to guide industrial development along new lines in which tariff protection has to be extremely selective and flexible in order to provide a safety margin in the initial stages while at the same time promoting subsequent rises in productivity.

Given the difficulties in tariff protection, there has been a trend to increase the use of tax incentives to promote industrial development. Several types of tax exemption, especially exemptions from income tax, the accelerated depreciation of assets, the periodic revaluation of capital, exemptions from customs duties for imports of machinery and equipment, and drawbacks on exports have been frequently used although not always well controlled. The effect of these incentives to date is a matter of opinion: in both Argentina and Mexico, exemptions from income tax seem to have exerted little influence on the investment decisions of entrepreneurs. Even in cases where they may have had favourable effects, their usefulness as instruments of development has been reduced owing to faults in the way in which they were applied. The extension of the benefits of tax incentives to all newly established enterprises has promoted the formulation of excess capacity in certain branches of industry, often with adverse effects on older enterprises whose production equipment and techniques, irrespective of how efficiently they are used, have not been able to compete with new plants. Moreover, exemptions from taxation have often been allowed to run beyond the cut-off dates initially fixed because of pressure from enterprises benefiting from them, even though the profits of such enterprises may exceed what might be considered a normal level.

Generally speaking, tax incentives are included in a large number of legal provisions, most of which relate to income tax legislation. This is the case in Chile, Colombia and Venezuela, while in Argentina and Brazil they are scattered through a number of acts and decrees.

In order to guide and encourage industrial development, other countries have promulgated special development legislation which, although it reflects an effort to simplify and coordinate a number of different legal provisions, normally deals only with matters of taxation and does not form a coherent set of industrial policy measures. This legislation usually includes exemptions for new industries which fulfil certain requirements. Such exemptions usually comprise total or partial exemptions from charges in respect of the incorporation of enterprises; exemptions from customs duties on imports of machinery, equipment, and sometimes even raw materials, to be used in the enterprise; reductions in income tax; the accelerated depreciation of fixed assets or the revaluation of capital assets, which involves an indirect reduction in income tax; exemption from export duties; reduction of taxes on profits, etc.

Examples of this kind of development legislation are Mexico's Act on the Promotion of New Essential Industries of January 1955; Ecuador's Industrial Promotion Act No. 3,005 of December 1964; Peru's Industrial Promotion Act of November 1959, amplified by Act No. 17,044 (Title II) of July 1968; Bolivia's Legislative Decree for the Development, Promotion and Assistance of Private Industry of October 1965; Paraguay's Industrial Promotion Acts of 1953 and 1955, amendments to which were being discussed at the end of 1968; and Panama's No. 12 of 1950, together with Act No. 25, which expanded it, and Decree No. 144 of 1965, which brought it up to date.

The industrial development legislation adopted in 1958 in Honduras and Nicargua, in 1959 in Costa Rica and Guatemala and in 1961 in El Salvador followed very similar lines. In recent years, however, these countries have tended to standardize their legislation with a view to implementing the Central American Agreement on Fiscal Incentives to Industrial Development.

As indicated earlier, the tax incentives contained either in special development legislation or scattered through a number of different legal provisions seem to have been relatively weak in their effects. Part of this is attributable, at least in the Central American countries and other countries at a similar stage of development, to the low levels of income tax and in some cases to the fact that income tax is of relatively recent date.

Another method of promoting industrial development which has played an important role in the establishment of new industrial capacity has been direct State action, either through the provision of external economies by providing the power and transport infrastructure, or or through the direct establishment of industrial enterprises, sometimes in association with strictly private interests. This has been of particular importance in such countries as Colombia which, through its Industrial Development Institute (Instituto de Fomento Industrial), has set up some thirty large enterprises over the past twenty years, including Planta Colombiana de Soda, Industria Colombiana de Llantas, Acerías Paz del Río, Cementos Boyacá, Celulosa y Papel de Colombia, Forjas de Colombia, etc. Over the same period, over forty large industrial enterprises have been established in Chile, including Compañía de Acero del Pacífico, Impregnadora de Maderas, Industria Azucarera Nacional, Manufactura de Metales S.A., Manufacturas de Cobre, Corporación de Radio de Chile, Empresa Nacional del Petróleo, etc. Many enterprises in Mexico have been established through State action or with a large measure of State support.

In some countries, it has often been the practice to transfer total or partial control of State industrial enterprises to the private sector once they have passed through the initial stages in which difficulties and risks are greatest, the State sometimes retaining control only of enterprises which are of special strategic importance for the development of the country. Over the past decade, State action in industry has been relatively limited, although an exception to the rule is Venezuela, where many new enterprises have emerged, including the Venezuelan Petrochemical Institute (Instituto Venezolano de Petroquímica), Siderúrgica del Orinoco, Aluminio del Caroní, etc.

The government sector has also had an impact through its various efforts to develop overall programming for the industrial sector.

As industry developed beneath its protectionist umbrella, the imbalances due to haphazard and spontaneous growth became gradually more evident and there was growing awareness of the need to direct the development process. Early attempts at industrial planning had to overcome the opposition of the private sector, which viewed them as unnecessary State intervention, and they were unsuccessful precisely because they lacked a policy for plan implementation, or rather because they existed side by side with policies that often conflicted with the planned objectives.

One of the instruments that has had a large influence on industrial development has been the use of credit and in general the management of capital markets. In some cases, banking or financial bodies have been set up under government agencies with the specific aim of providing credit for industrial enterprises, as a complement to the credit available from private financial institutions. In other cases, the State has worked indirectly, either by encouraging the participation of commercial banks in the financing of enterprises or by supporting the operation of stock markets, although without giving special attention to the needs of industry. Some foreign credit institutions and large firms have also participated directly in the flow of capital to the industrial sector. While all such credit mechanisms, which are discussed in detail in a later section, have played a decisive role in the industrialization process, they have big problems and limitations in meeting specific current needs and, in the relatively less developed countries of the region, either have not yet become experienced enough or broad enough in scope, or have had some adverse effects.

The various industrial policy instruments outlined above have gradually accumulated over the past decades without any widespread effort having been made to co-ordinate them or give them a unified approach. The lack of co-ordination between the various measures has led in some instances to paradoxical situations: for example, industries producing capital goods are encouraged by appropriate tariff protection, and sometimes even by measures prohibiting public bodies from purchasing capital goods abroad if a domestic equivalent exists, and yet they are unable to develop because they lack medium-term credit facilities or because their market is not large or stable enough owing to the large number of exemptions contained in the tariff protection machinery.

If, in the years ahead, a development strategy is to be adopted with more far-reaching and ambitious objectives than those of the recent past, there must be a complete change of emphasis in the use of the instruments of industrial development policy. As will be shown in later sections, a whole host of instruments and bodies have been established in the countries of the region over the past two decades covering a wide field of industrial policy; but for various reasons they are not being properly used and they must be carefully evaluated if they are to be used more rationally in the future.

Efforts to promote regional integration and, even more, the need to compete in world markets, require a decisive change in the way tariff mechanisms are used, which must become more flexible and selective and be better co-ordinated with the other economic policy instruments. Among such instruments, tax incentives, which so far seem generally to have had a minor influence on industrial activity, may in future acquire growing importance as excessively high tariff barriers disappear. Similarly, direct State action, either through the establishment of industrial enterprises or through State participation in semi-public enterprises, may have a decisive effect on the development of certain branches of basic industry in the relatively less developed countries, where the scarcity of financial resources places very narrow limits on action by domestic private enterprises. The operation of credit mechanisms should also be modernized and made more flexible in order to meet the new and very varied needs that will stem from the development strategy being worked out for the coming decade. At the same time, stock markets will have to seek the most direct and expeditious way to match the resources generated by savings with the possibilities of investment in industrial enterprises.

The experience of the past two decades may yield some important conclusions which will help to guide future action in each country, in line with its own special characteristics, and within the region as an integrated whole.

Hence, it will be necessary to make a very detailed analysis of past experience in connexion with the various instruments of industrial policy. The sections that follow give a preliminary review of the measures adopted in some countries of the region to deal specifically with critical areas of industrial development.

2. TECHNOLOGY, EFFICIENCY AND PRODUCTIVITY

One of the consequences of indiscriminate protectionism is the establishment of a large number of productive units of inadequate size with antiquated techniques and often outmoded equipment. Side by side with these, there is surplus installed capacity in some industries which is either designed to ensure monopoly control or is the result of an uncontrolled flood of investment in a particular branch of industry. In both these cases, productivity is lower than it could be if resources were used more rationally.

Although in earlier days nobody worried much about such anomalies, as industry has gradually developed and the need to export more and more manufactures has made itself felt, it has become evident that low productivity is a difficult problem to overcome, particularly since its effects usually build up as goods move through the various stages of the manufacturing process.

Over the past twenty years concern about low productivity has become widespread, even in the relatively less developed countries, in view of the prospect of trade liberalization as a result of the establishment of an integrated regional market. This is why industrial policy instruments, especially those based on exemptions from taxation, began to be used in an attempt to influence some of the important decisions of entrepreneurs, mainly with the idea of encouraging them to modernize their machinery and equipment and, to a lesser extent, to make more intensive use of their installed capacity.

In Argentina, for example, what is termed the "priority for equipment" régime authorizes the importation, free of all taxes, exchange charges and customs duties, of machinery and equipment for which there is no domestically produced equivalent, provided that certain conditions are met, the first of which is that the investment shall yield technical and technological improvements and shall help to increase domestic production, improve its quality and lower its cost. Similarly, the industrial development act of Ecuador provides that, when calculating the proportion of their income subject to income tax, enterprises may deduct any sums invested or reinvested in the expansion or improvement of their industrial plant, and also any sums spent on research to improve existing production techniques or to develop new ones. The development act of Paraguay also provides tax incentives for existing industrial enterprises which expand or modernize their installations, and for new enterprises which incorporate new installations and modern production techniques into their plant, provided it is shown that this will help to develop the industry concerned. Under the act relating to exemptions in respect of machinery, equipment and raw materials in Venezuela, one of the conditions is that entrepreneurs must modernize their machinery and equipment from time to time.

Although these legislative provisions do show that there is a degree of awareness of the problem, they are not very effective in practice owing to their vagueness and the difficulty of providing for particular cases. More direct results might perhaps be obtained, although in an indirect way, by authorizing the accelerated depreciation of fixed assets. Decree No. 54,298 of September 1964 in Brazil established a special coefficient for accelerated depreciation in order to stimulate investment for the renovation and modernization of industrial installations. The industrial promotion act in Peru allows enterprises to increase the annual rate of their depreciation allowances or reserves in respect of industrial machinery or equipment if, because of unusually long workdays or other causes, they are subject to excess wear and tear, or if they have been replaced or it is guaranteed that they will be replaced by more efficient machinery or equipment.

There are similar provisions in the development act of Ecuador, and in the legislation of

Chile, Colombia and other countries which, while not explicitly stating that their aim is to encourage the speedy renovation of equipment, in practice facilitate it by providing for the accelerated recovery of the financial outlay required.

A special provision has been used in Mexico to prevent the installation of excess capacity under which certain industries are declared to be "saturated". The application of this provision has been confined to a few relatively simple manufactures, and if it became more widespread it might lead to the legalization of monopolies or oligopolies which would impede rather than encourage improvements in productivity.

In some more recent instances credit incentives have been used to promote industrial development. The Fund for Expansion of Productivity (Fundo de Desenvolvimento da Produtividade—FUNDEPRO) established in Brazil in 1967 assists industrial enterprises in the preparation or implementation of projects to increase productivity and provided five-year credits at an interest rate of 6 per cent, plus commissions and monetary adjustments, up to a total of 60 per cent, or in special cases 80 per cent, of the cost of the project. In other countries, the granting of loans has been linked to the adoption of recommendations on the internal functioning of enterprises, although this has generally been confined to assistance programmes for small-scale and artisan-type industry.

These efforts, however, seem to have had but a marginal effect and have not been sucessful in increasing efficiency in the use of resources or in raising levels of productivity to any significant extent.

A more detailed analysis would certainly reveal that this is partly due to a number of factors, one of which is the fact that many enterprises are family-owned. Because the family cannot supervise all the time, there has to be one work shift per day. Another factor is the difficulty of obtaining financing, which leads the medium-sized and small producer to use his equipment for excessively long periods. A factor of special importance among the many that have to be considered is that of the techniques used.

Little has been done so far to adapt imported techniques in a systematic and rational way to Latin American conditions, and there have been few efforts to initiate a process through which new techniques would be evolved specifically for the region. The demonstration effect of the consumption habits of the developed countries is often so strong as to obscure the need to use regional resources rationally. The gradual replacement of textiles made largely of wood and cotton—of which there is an abundant supply in several of the Latin American countries—by synthetic textiles of comparable quality is merely one example of this trend.

The aim is not to halt the introduction of technological improvements—which have undeniably made a valuable contribution to the development of the region—simply because they come from abroad; on the other hand, neither is it to accept all imported techniques without first checking their suitability, as has happened in recent years.

As a result of technological progress, many newly established enterprises have been able to achieve high levels of efficiency, while older enterprises have been able to modernize, benefiting both from new techniques and from the advantages of using internationally known trade marks. But the direct costs in respect of royalties, patents and registered trade marks paid to the foreign enterprises supplying the technology, the premium on the value of special machinery and equipment, and the cost of technical assistance for the installation and periodic inspection of plant, may come to represent a substantial burden, depending upon market conditions and the size and financial soundness of the enterprise concerned. If to this are added all the restrictions usually included in contracts covering the size of the market, distribution, and prohibitions on the use of other trade marks, and also the social costs—which are difficult to calculate—due to the fact that the techniques are not suited to the actual resources available, it can be seen that there is ample justification for a more detailed study of the matter.

It should be recognized that some valuable work has been done recently to find a suitable approach to the question of technological research. The establishment of the Central American Research Institute for Industry (Instituto Centroamericano de Investigación y Tecnología Industrial) in 1955, the National Institute of Industrial Technology (Instituto Nacional de Tecnología Industrial) in Argentina in 1957; the Institute of Technological Research (Instituto de Investigaciones Tecnológicas) in Colombia; the Mexican Institute of Technological Research (Instituto Mexicano de Investigaciones

Tecnológicas) in 1950; the Research Institute (Instituto de Investigaciones), affiliated to the Monterrey Institute of Higher Technical Studies (Instituto Tecnológico de Estudios Superiores) in 1961; the Venezuelan Institute of Technological and Industrial Research (Instituto Venezolano de Investigación Tecnológica e Industrial) in 1958; and the National Institute of Technology (Instituto Nacional de Tecnología) of Paraguay in 1963, shows that there is a desire to give definite encouragement to this kind of activity. Similarly, in Brazil, the work being done by the National Institute of Technology (Instituto Nacional de Tecnología) and by the Institute of Technological Research of the State of São Paulo (Instituto de Investigaçoes Tecnológicas do Estado de São Paulo), is being supported by the work of the Foundation for Assistance to Research of the State of São Paulo (Fundação de Ampara a la Pesquisa do Estado de São Paulo—FAPESP) which makes the resources it receives—a contribution of 0.5 per cent of its revenue by the state government—available to research laboratories and centres, while maintaining the necessary control to ensure that the resources are used effectively. Since 1964, funds for research have also been provided by Brazil's Fund for the Development of Science and Technology (Fundo de Desenvolvimento Técnico-Científico—FUNTEC), administered by the Banco Nacional de Desenvolvimento Econômico (BNDE), which finances research to facilitate and channel the introduction of technological innovations into industry, the adaptation of processes and techniques to local conditions and the invention and improvement of industrial production methods to make intensive use of the country's natural resources.

Generally speaking, these institutions, and all the others that have been in operation in the region for some time, have found their capacity for action limited by lack of financial resources, which has at times made it impossible for them to modernize even their own equipment and laboratories. In addition, the lack of communication between institutes, laboratories and universities in the various countries of the region has deprived them of the possibility of complementing each other's work. This particular problem has been discussed on many occasions by representatives of the various countries, in conjunction with UNESCO and ECLA, and it was decided to establish the Centre for the Application of Science and Technology to Development in Latin America (Centro para la Aplicación de la Ciencia y la Tecnología al Desarrollo de América Latina—CECTAL), which began operation in Brazil in 1968.

Together with this work on research and the adaptation of techniques, work has also been done on industrial standards, initially at the national level, with a view to achieving uniform standards in all the countries of the region.

In some countries, the establishment of industrial standards institutions is of relatively recent date. In Peru, the National Institute for Industrial Technical Standards and Certification (Instituto Nacional de Normas Técnicas Industriales y Certificación) was established in 1959, and in the same year Venezuela established the Venezuelan Industrial Standards Commission (Comisión Venezolana de Normalización Industrial), while the Colombian Institute of Technical Standards (Instituto Colombiano de Normalización Técnica) dates from 1964. Even in countries where institutions of this kind have been in existence for some time, efforts have recently been made to rectify existing deficiencies. For example, a new general law covering standards and weights and measures was enacted in Mexico in 1960, and in Brazil, where the Brazilian Association of Technical Standards (Associação Brasileira de Normas Técnicas—ABNT) was already in existence, a private body has been established, the Brazilian Association for the Development of Basic Industries (Associação Brasileira para o Desenvolvimento das Industrias de Base—ABDIB), which co-operates in setting standards and organizing quality control for basic industry.

Spurred on by the process of regional integration in which they are engaged, the Latin American countries have declared their intention of adopting common technical standards to facilitate trade. The Pan American Commission for Technical Standards (Comité Panamericano de Normas Técnicas—COPANT), which was established in 1961, has begun the work of harmonizing the various standards existing in the region.

Noteworthy, too, among efforts to encourage industrial enterprises to increase productivity, are the activities of the productivity centres which have been set up over the past two decades. The technical co-operation department of the Chilean Institute of Productivity of the Technical Co-operation Service (Instituto Chileno de Productividad del Servicio de Cooperación Técnica) began operation in 1951, the National Productivity Centre (Centro Nacional de Productividad) of Mexico in 1955; shortly afterwards the National Productivity Centre (Centro Nacional de Produtividade) was set up in Brazil, and now has twenty state centres. This was followed by the establishment of the National Centre for the Increase of Productivity (Centro Nacional de Incremento de la Productividad) in Peru in 1960, the Venezuelan Institute of Productivity (Instituto Venezolano de Productividad) in 1962 and of productivity centres in Costa Rica, Guatemala and Panama in 1963, in Uruguay in 1965 and in Paraguay in 1967.

These centres, generally established by entrepreneurial institutions, sometimes with government support, have received financial assistance from the United States Agency for International Development (AID), the Organization of American States (OAS) and the Inter-American Productivity Association (Asociación Interamericana de Productividad), and technical assistance from the International Labour Organisation (ILO). In most cases, their work has consisted in organizing seminars and courses for supervisors, managers and administrators and in disseminating information about productivity.

The various efforts made to encourage enterprises to modernize their equipment and raise their levels of productivity, as well as the work done on research and standardization, will have to acquire a great deal of momentum in the coming years if they are to promote rather than hamper regional integration. While slow but sure progress is being made in technological research and the adoption of standards for industrial products and processes, a special effort has to be made to reconvert and modernize outmoded enterprises which will otherwise inevitably be shouldered out by new firms with more modern ideas of production techniques and efficiency.

3. Institutional framework and financing

Over the past twenty years the actual structure of Latin American enterprises has not changed to any significant extent. Efforts to improve management capacity and the internal organization of the productive process, mainly initiated in productivity centres or in such organizations as the development centres in Venezuela and Ecuador, are slow to take effect and are still not very broad in scope because they are so recent.

Nevertheless, a number of efforts have been made at the State level to provide institutional support for industrial enterprises. In most countries of the region industrial development programmes have been designed to induce private enterprise to adopt decisions which are most in the interest of the community as a whole. These programmes sometimes form part of over-all programmes, and sometimes relate to the industrial sector exclusively, either covering the main branches or concentrating on a particular branch or on small-scale industry. Although there has been progress in this respect in virtually all countries, the implementation of these programmes has been seriously hampered by the lack of continuity in political decision-making or by switches of policy. Added to this is the fact that in many cases no specific projects through which the programmes could be put into effect or no sufficiently detailed policy measures to facilitate their implementation have been included in the programmes. Moreover, there has been an absence of any real contact between planning offices and the government agencies responsible for putting plans into effect.

Nevertheless, side by side with the work done on industrial planning, and as a result of the joint endeavours of a number of isolated elements, both public and private, some work has been done to develop specific projects in line with the priorities recommended in the plans.

In a number of countries, for instance Chile, Mexico and Venezuela, it has sometimes been common practice for development organizations to prepare projects which are then handed over to private investors. In Brazil the Finance Company for the Study of Programmes and Projects (Financiadora de Estudos e Proyectos), was set up in 1965 under BNDE to finance project preparation and feasibility studies through loans with repayment periods of as much as ten years. In Mexico, the Fund for Pre-investment Studies (Fondo de Estudios de Preinversión), a trust fund of the Nacional Financiera, was set up at the end of 1967 for similar purposes. The industrial promotion department of the Venezuelan Development Corporation (Corporación Venezolana de Fomento) prepares projects which are then handed over to entrepreneurs, who do the work and provide a portion of the capital required.

These efforts have been supported financially and complemented at the regional level by the Pre-investment Fund for the Integration of Latin

America, established by the Inter-American Development Bank (IDB) in 1966. The Fund's resources have been made available to government agencies, development corporations, multinational bodies, private organizations, etc., to finance pre-investment studies for programmes or projects promoting Latin American integration. This Fund covers various fields of activity, but some of its resources may be used for industrial programmes and projects.

As a complement to these recent activities, in some countries of the region—Mexico, Ecuador and Venezuela—periodic lists of investment opportunities have been sent to investors, and in some cases sets of draft projects are available upon request. In order to channel investment and prevent the accumulation of excess capacity in particular branches of industry, since 1962 Venezuela has had a project register in which the names of persons requesting State aid or financial assistance must be recorded.

All these efforts, together with the industrial development legislation, are helping to form a more suitable institutional framework for the development of industrial activities. However, the process of economic integration is bringing new needs in its train to which, with some exceptions, no adequate response has yet been made. Some isolated pieces of legislation—for instance Decree No. 284 68 HC, adopted in Peru in August 1968, which paves the way for multinational enterprises by establishing a clearly defined framework of legislation and taxation—give grounds for hope that certain critical problems will eventually be solved. Nevertheless, there are still some strong institutional barriers to be overcome. For example, the possibility of co-ordinating industrial programmes and harmonizing industrial policy in the countries of the region will remain a distant hope until stable and well-defined machinery is established within each country.

If Latin American industry is to be in a position in the future to deal successfully with the problems of its development and if, in addition to promoting the flow of intra-regional trade it is to secure its due share of world markets, substantial changes will have to be made in the institutional framework, which may well become one of the key factors for future development.

Financing is another equally critical factor, and one which has traditionally hampered industrial development possibilities in Latin America.

The financial status of industrial enterprises depends on a great variety of factors whose effects are difficult to isolate. Protectionist policy, price-fixing, wages policy, taxation and exemptions from taxation, and even some administrative provisions, all have an effect on the capacity of enterprises to generate their own funds. The influence of some of these policy measures was discussed in earlier sections, especially in relation to tariff protection and tax legislation that affect the investment or reinvestment of funds. The measures adopted in recent years with regard to the supply of external funds to enterprises in the form of direct contributions, loans and foreign investment are discussed in the following paragraphs.

The slow pace at which *per capita* income has grown, together with certain persistent structural deficiencies, has meant that savings in Latin America have remained at a generally low level. Given this trend, the industrial sector has had to compete with the other sectors of production in order to attract its share of the resources available, not always with success.

Personal savings, which could become direct capital inflows, are generally attracted into other forms of investment which offer comparable or higher returns and are easier to recover, for example, time deposits in savings banks or associations, or speculation with foreign currency. Given this situation, there has been no effective way to channel such savings towards industry.

In the vast majority of cases, the position of stock markets has weakened in recent years, particularly in so far as their capacity to channel financial resources to industry is concerned. Even in Mexico, where the buying and selling of the shares of the Nacional Financiera make the market specially dynamic, transactions in the shares of industrial enterprises are of little significance. In the other countries which have stock markets there has been a steady decline, both in the real value of securities and in quotations of industrial shares. In an effort to reverse this trend some countries are taking definite steps to try to recover—or to win—the confidence of investors.

In Argentina, for example, a new Stock Market Act was adopted in September 1968 which made some changes both in the market itself and in the provisions governing incorporated companies. In Brazil, Legislative Decrees No. 157 and No. 238 of August 1967 grant exemptions from taxation to purchasers of shares, allowing deductions from income tax of up to 10 per cent for persons and up to 5 per cent for enterprises for this purpose. In Colombia, Decree No. 2229 of August 1968 requires the administrators of incorporated companies, *inter alia*, to submit data on the salaries, fees, travel allowances and other income of company directors, with the aim of controlling and protecting the interests of small shareholders. In 1965, the first stock market in Central America was opened in El Salvador, and at the end of 1968 Paraguay was planning to establish a stock market to channel savings towards investment in industrial securities.

Despite all these efforts, however, it appears that savers tend to have more confidence in fixed-income securities issued by large institutions than in industrial securities.

The direct contributions made by some State financial corporations, such as the Nacional Financiera of Mexico or the Venezuelan Development Corporation, have helped to support private investment and channel it towards the industrial sector, with fairly successful results, and it is hoped that the Andean Development Corporation (Corporación Andina de Fomento) will be able to do the same on a subregional scale, although these institutions generally do not operate through stock markets but rather compete with them. Financial enterprises that operate as investment funds have shown the same weaknesses as stock markets.

In view of the above, it is clear that a careful review is needed of the current machinery through which stock markets operate, since such markets can play an important role in the future if the proper channels are provided.

In contrast to the inflexibility of stock markets, and the decline in their operations, credit mechanisms have been supplying an increasing volume of financial resources to industrial enterprises. While it is true that the traditional banking system has had—and still has in some countries—rather serious limitations in terms of fulfilling the needs of industry, it must be recognized that various measures have been adopted latterly—with varying degrees of success—to make credit mechanisms more flexible and effective.

The shortage of medium-term and long-term credit, which has long been one of the most critical problems in industrial financing, has received special attention. In addition, the supply of working capital has been expanded and special mechanisms have been sought to solve the acute problems of the capital goods industry. In order to do this some countries have endeavoured to eliminate legal restrictions on bank credit operations, and have also authorized the formation of other private financial bodies, such as financing companies, development banks etc., with more flexible regulations. More rapid and effective action has been achieved through the establishment of machinery which takes advantage of the direct contacts between commercial banks or other private financial institutions and enterprises in order to transfer State resources, most of which come from external loans, to enterprises.

In Brazil, for example, a group of financing funds were set up in 1964 and 1965 under the National Economic Development Bank, to provide credits for the purchase of domestically produced equipment and machinery (FINAME), for the financing of small-scale and medium-sized enterprises (FIPEME) and of studies and projects (FINEP), and for the provision of working capital (FUNDECE). In October 1968, Colombia established an Industrial Fund within the Banco de la República which is authorized to rediscount loans granted by banks and financial corporations to small and medium-sized industrial enterprises. In Peru, the functions of the Banco Industrial were expanded to include development promotion functions when the National Institute for Industrial Promotion (Instituto Nacional de Promoción Industrial) was amalgamated with it.

Together with domestic resources of credit, external loans from international institutions —the International Bank for Reconstruction and Development, IDB, and others—and from government financial agencies—the Export Import Bank, AID, etc.—have played an important role in recent decades. Although only a portion of the resources made available by these bodies has gone to the industrial sector, it has been sufficient to cover the foreign exchange expenditures of some important new ventures, especially in the field of chemicals, petroleum products, pulp and paper, and basic metals.

The trend over the past ten years has been for these resources to decline, while interest rates have generally tended to climb. So far, despite repeated efforts, it has not proved possible to modify one of the features of external credit which places Latin America at a special disadvantage: the tying of credits to the origin and destination of the goods purchased, together with the restrictions imposed thereby on transport and insurance.

Given the above, it will be necessary to ensure that in the future there is a growing volume of external resources to help Latin American industry through the critical stage of transformation now before it. This will not be possible unless the developed countries commit a somewhat larger proportion of their resources to assisting the countries of Latin America.

A further reason for enlisting external support is the fact that conditions will change in the region as the process of economic integration progresses. The experience of more advanced countries shows that additional financing is required to reconvert industries which are being ousted by new and more efficient enterprises. Quite probably this need will be particularly acute in Latin America, where, because of the relatively high proportion of medium-sized and small enterprises and artisan-type industries, relatively more enterprises may be expected to find themselves utterly unable to compete as markets are gradually liberalized.

In recent years, foreign private investment has also played an important part in the industrial sector.

In earlier years, foreign private investors showed little interest in Latin American industry, except in those countries which had relatively large domestic markets, such as Argentina, Brazil and Mexico. However, over the past twenty years, the amount of foreign private investment has grown and, while it does not represent a large proportion of total industrial capital, it has gone predominantly to some of the fastest growing branches, for example, the motor-vehicle, petrochemical, electrical machinery and electronics industries, etc. The countries of the region have adopted conflicting attitudes towards this situation. Some think that accepting foreign capital in these branches of industry is the most direct method of incorporating modern production techniques into industry, while others think that, since these are the branches with the highest potential growth, they should remain under national control. Added to this, there is the growing tendency of foreign investors to take over Latin American enterprises that are already in operation; this may mean nothing more than a transfer unless the resources thus freed are reinvested in the sector.

Despite the changes in the way that foreign investment reaches Latin America, few industrial policy measures seem to have been taken to channel this investment. In general there has been no change in the traditional policy of attracting capital from all and sundry by offering a variety of exemptions and incentives, with limitations in only a few cases.

For example, under Act No. 14,780 of 1958 in Argentina, foreign capital has the same rights as domestic capital, although subsequent legislation granted preferences in some cases and incentives in others. In September 1967 a foreign investment promotion service (Servicio de Promoción de Inversiones Extranjeras) was established, which has endeavoured to give even greater facilities to foreign investors. In Brazil, Act No. 4390 of 1964 and Decree No. 55,762 of 1965 guarantee foreign investors broad freedom of operation, while resolution No. 7 of 1968 in Colombia raised the percentage of profits that could be repatriated. In Chile, foreign investors are granted a number of exemptions on imports of machinery and equipment, and accelerated depreciation of fixed assets, etc. In Mexico, foreign capital may not exceed 49 per cent of the total capital of enterprises covered by the Act on the Promotion of New Essential Industries; and in a few cases the capital must all come from domestic sources. In Paraguay, Act No. 246 of 1955 granted foreign investors wide-ranging guarantees and customs and tax benefits, and also authorized them to purchase foreign exchange from the Central Bank for remittances abroad.

The contribution that foreign industrial enterprises can make to the Latin American countries in terms of both technology and administrative efficiency and organization must be channelled in such a way that the maximum benefit is derived from it. This necessarily implies the more or less uniform treatment of foreign capital in the various countries to prevent them from competing with each other to their own detriment in the incentives they offer to investors. It also means that the interests of local entrepreneurs will have to be safeguarded to ensure that they are not excluded from the most dynamic industrial activities which offer the best financial prospects.

Hence, it may be affirmed that in terms of financing there have been serious shortcomings in the mechanisms involved in the flow of funds to Latin American industrial enterprises, and that, judging by recent trends, the problems of Latin American industry are becoming more acute.

Great efforts will therefore have to be made to improve financing if future development is to be possible. Expansion of the volume of resources flowing to industry, and diversification of the methods of financing with the emphasis on longer repayment periods are both essential prerequisites of this improvement. This cannot be achieved unless important decisions are taken on internal economic policy, added to which there must be a substantial inflow of external financial assistance.

4. EMPLOYMENT AND LABOUR PROBLEMS

Because of the rapid growth of the population, and hence the labour force in Latin America, and the inevitable migration to the cities of a part of the rural population, all the sectors of production except agriculture have been subject to strong pressures caused by the demand for new employment opportunities in the last few decades; but the secondary sector, which has its own limitations on growth, has not reacted forcefully to this pressure. Part of the surplus agricultural population of working age, which is virtually completely untrained, has been absorbed into the building industry or low-productivity services, while the remainder have swelled the ranks of the unemployed, gradually aggravating the problem of marginality.

As they are naturally not organized, the segments of the population affected by unemployment have not been strong enough to press for the adoption of measures to improve matters. The specific objective of raising employment levels has not been one of the major concerns of those who frame and control economic policy in Latin America. An unemployment rate of 5 to 6 per cent of the labour force has come to be considered normal, and when this rate has been exceeded the State has been given the responsibility for absorbing the excess manpower either in public works or by overstaffing State enterprises and bodies.

It was hoped that the level of employment would rise automatically as the over-all economic development process gained momentum; and, given the continued stagnation of agriculture and the inevitable migration of the rural population because of improvements in productivity, responsibility for absorbing a growing proportion of the labour force began to shift to industry, as it was relatively the most dynamic sector. However, this was not done in an explicit fashion. It would be difficult to find any industrial policy measure directed exclusively towards increasing employment in industry, although there are some measures that indirectly or partially seek this goal.

For example, one of the basic objectives of the policies for the promotion of artisan-type and small-scale industry adopted in some countries has been to raise, or at least to maintain, the level of employment in plant with relatively modest capital requirements.

The Banco Industrial of Argentina has been administering a system of special loans for the establishment, expansion and modernization of small-scale industry in the interior of the country, whose basic objectives include using local raw materials and employing locally available manpower. Similarly, the credit programme of the Venezuelan Ministry of Development, which operates through the National Commission for the Financing of Small-scale and Medium-sized Industry (Comisión Nacional de Financiamiento de la Pequeña y Mediana Industria), established in 1959, includes among its basic objectives the guarantee of permanent sources of employment and promotion of the training of entrepreneurs and industrial manpower. Although such objectives are not explicitly stated in Mexico's programmes for the development of small-scale and medium-sized industry, they are referred to in article 11 of the Act on the Promotion of New Essential Industries, which lists the secondary priorities that may affect tax exemptions or the amount of tax reductions granted under the Act, and states that one of the factors considered will be the quantity and quality of the manpower employed or to be employed.

Furthermore, regional development policies may also be interpreted as attempts, albeit partial, to retain manpower in its area of origin in order to prevent increased migration to the industrial centres.

This seems to be a major objective in the countries which are geographically the largest. It has been stated[31] that regional planning in Mexico is focused mainly on the problem of employment, seeking systems and methods that will provide employment for the many unemployed or underemployed within each region. Accordingly, since the nineteen-fifties the formation of regional industrial centres has been encouraged by extending electricity networks, reducing railway transport rates, etc. The state governments have assisted by enacting industrial development legislation granting tax exemptions for up to thirty years in some cases and releasing land for the construction of industrial estates. As a result, new industries have been developing in the states of Morelos, Puebla, Querétaro and in other relatively backward areas.

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[31] Statement by Alfredo Navarrete, Director of Nacional Financiera, at the *Jornadas industriales de Jalisco* (August 1967).

Similarly, one of the basic objectives of the Departments for the Development of the Nordeste (Superinténdencia de Desenvolvimento do Nordeste—SUDENE) and Amazonia (Superinténdencia de Desenvolvimento da Amazonía—SUDAM), which were set up in 1959, was to promote new activity in the two regions, especially in industry, to absorb the unemployed labour force formerly employed in agriculture. For this purpose, companies were allowed to apply 50 per cent of their income tax to activities promoted by the two Departments, provided they supplied an equal amount of matching capital, a large proportion of which they could obtain through regional banks.

There has been some discussion as to whether the measures to promote artisan-type and small-scale industry and the regional development policies adopted in Latin America are justified, either in terms of their employment objectives or in terms of their effect on the costs of industrial production.

Clearly, the indiscriminate granting of incentives to all small-scale industrial enterprises would conflict with the need to raise productivity and lower costs. However, it is worth looking to see in which branches or products there is—or there could be—any real choice of techniques, given the current supply and relative cost of capital and labour.

There is some evidence that in the metal-transforming industries, for example, there is a great deal of scope for small enterprises operating as subcontractors. There may also be some benefit in establishing small rural and fisheries industries to meet local needs. Similarly, it would be useful to determine to what extent and under what conditions industrial growth based on highly productive units is capable of generating a margin of indirect employment—in transport, marketing and other services—which would equal or even exceed the amount of employment that can be obtained directly from less productive but more labour-intensive units.

Furthermore, it would be advisable to see how in some cases the bottlenecks in public, administrative, transport and other services actually cancel out the external economies of centralization, and thus justify the formation of new development centres at greater distances from one another.

Answers to these questions may contribute to the adoption of employment objectives compatible with a rapid growth of production and harmonious regional development within each country.

Industrial manpower problems, however, are not confined to the quantitative side of employment. Equally or even more important are deficiencies in vocational training and the low wage levels of unskilled workers.

Admittedly, the fact that the labour force lacks skills is part of a complex social structure of which industry is but one component. Because of its specific needs, however, industry has made some attempt to solve this problem.

Much more effort has been made in recent years to improve the level of skills of adult workers. The few existing traditional institutions, generally coming under the various ministries, have been joined by new bodies which can operate more flexibly but have a more limited educational range.

The National Industrial Training Service (Serviçio Nacional de Aprendizagem Industrial—SENAI), established in Brazil in 1942; the National Training Service (Servicio Nacional de Adiestramiento—SENA) established in Colombia in 1957; the National Institute for Educational Co-operation (INCE) established in Venezuela in 1959; the National Service for Industrial Training and Labour (Servicio Nacional de Aprendizaje y Trabajo Industrial—SENATI) established in Peru in 1960; the Accelerated Manpower Vocational Training Programme (Programa de Formación Profesional Acelerada de Mano de Obra) established in Chile in 1960, which in 1966 became the National Institute of Vocational Training (Instituto Nacional de Capacitación Profesional—INACAP); the training centres for industrial labour established in Mexico in 1963; the National Training Institute (Instituto Nacional de Aprendizaje) established in Costa Rica in 1965; the Institute for the Training and Development of Human Resources (Instituto para la Formación y Aprovechamiento de Recursos Humanos) established in Panama in 1965; the accelerated vocational training schools started in the Dominican Republic in 1966; and the Vocational Training Service (Servicio de Capacitación Profesional) of more recent date in Ecuador—all these institutions have somewhat similar characteristics.

Although some of them come under the State system and others under entrepreneurial organizations, it is the latter which direct and determine the course of action to be followed. They generally provide vocational training for young apprentices and advanced training for adults, with a view to supplying workers with skills. Almost all such institutions provide theoretical and practical training through in-service courses or courses at training centres in different areas of the country which cover a number of trades, such as the various types of mechanic, electrician, welder, etc. The courses are usually short, ranging from a few weeks to one year, taking the minimum amount of time required to learn a trade.

In some countries, recent legislation has endeavoured to combine the aim of increasing regional employment with that of manpower training; for example, an act adopted in Brazil in 1968 provided that 5 per cent of the total sums received by SUDENE and SUDAM in respect of fiscal incentives must be used for manpower education and training projects in the two regions.

Although such efforts are not a satisfactory response to the need to incorporate workers into the industrial community—not just as factors of production, but as human beings within a culture whose values they must of necessity share—they are at least helping to alleviate the high rate of unemployment and the acute shortage of skilled labour.

So far, however, it has not proved possible to bring a large proportion of unskilled labour into the consumer market since their low wages seriously limit their potential demand for manufactures. The level of employment and wages can probably only be raised through a massive training effort, combined with significant changes in the productive structure, especially in the agricultural sector, although this would certainly require great changes in other more general factors outside the scope of this document, which are responsible for the continuation of the present situation.

It is quite likely that employment and manpower training problems will become more acute in the near future. On the one hand, the fact that the rate of population increase is on the rise means that more and more young people are entering the labour market, while, on the other, the process of economic integration should bring with it economies in the use of resources, especially labour. The solution of these problems, in which the industrial sector will have to play a not insignificant part, will require very careful reflection since more than purely economic factors are involved.

5. REGIONAL INTEGRATION AND THE WORLD MARKET

(a) *Regional integration*

In 1958, the first multilateral agreements were signed, and the Central American Economic Integration Programme began to operate, two years before the conclusion of the General Treaty on Central American Economic Integration and the establishment of the Permanent Secretariat (SIECA). The rapid process of tariff liberalization and the adoption of uniform external tariff led to marked increases in trade between the countries of the region.

The instruments in force for the industrial sector are designed to facilitate investment decisions by enterprises concentrating on production for the Common Market.

The Régime for Central American Integration Industries, adopted in 1958, implicitly provides that only one industry in each branch of production will have free access to the regional market and qualify to be designated an "integration industry". Such industries are guaranteed, *inter alia*, that a competitor plant established in another part of the region will not have similar access to the market until ten years after its establishment. A further provision prevents a second "integration industry" being designated in any one country until all five signatory countries have one each.

To date only two plants have been declared integration industries: a rubber tire and tube plant in Guatemala and a caustic soda and chlorinated insecticides plant in Nicaragua, the latter having been in operation since 1967. There are also plans for plants for which admission to the Régime has been requested: two nylon filament plants, one in Guatemala and one in El Salvador, two pulp and paper mills, one in Guatemala and one in Honduras, and two iron and steel plants, one in Honduras and one in Costa Rica.

The number of actual achievements and projects planned is hardly satisfactory given that the Régime has been in operation for five years and the rapid progress that has been made in the elimination of trade barriers. This was probably why a further scheme to protect industrial development was put into effect under which surcharges may be placed on the common external tariff. A plant requesting the imposition of this surcharge must show that it is capable of satisfying at least 50 per cent of the regional demand for the goods it produces. Price-control machinery was also established under this arrangement. To date, only two enterprises have taken advantage of the scheme: one producing electric light bulbs and the other glass bottles, although there are many requests from other enterprises for admittance.

Another instrument which completes the set of measures adopted to promote industrial integration is the Central American Agreement on Fiscal Incentives to Industrial Development, concluded in 1962, which establishes a uniform régime for fiscal incentives to industry. The Agreement applies to both new industries and the expansion of existing industries and establishes a scale of graduated exemptions and incentives varying in accordance with the type of goods produced; industries producing capital and intermediate goods, for example, receive the highest benefits, and assembly plants the lowest. Because of its particular stage of development within Central America, Honduras receives special treatment under which it can grant additional incentives for certain periods. Nicaragua is also entitled to similar incentives, but for shorter periods. Taking advantage of this additional benefit, Honduras requested that its large-scale projects for a pulp and paper mill at Olancho and an iron and steel plant at Morazán should be designated integration industries.

Evidently, while the integration process in Central America does have a number of different instruments of an institutional character, its industrial achievements to date have been somewhat limited.

The Latin American Free Trade Association (LAFTA) has evolved in another way and has also used its instruments differently. While the programme for the gradual liberalization of trade by means of annual negotiations, the results of which appear on the National Schedules and the Common Schedule, made rapid progress initially, it has now slowed down as the negotiations have begun to deal with products of greater importance.

As is known, the obligation imposed by the Common Schedule is that products included in it must be completely and irrevocably freed from all duties and charges and other restrictions, although this obligation only becomes binding at the end of the twelve-year period stipulated in the Treaty, i.e., in 1973.

Although in the first section of the Common Schedule, approved in 1964, agricultural products (coffee, bananas, cocoa, cotton, etc.) and mining products predominate, some industrial products of some importance have also been included, for example long-fibre chemical wood pulp, which is traded in some volume between the LAFTA countries. The certainty that this product would circulate freely in the LAFTA area from 1973 onwards was probably one of the factors prompting Chile, for example, to develop projects for increasing its pulp production capacity; although the lowering of tariffs for third countries (alteration of the margin of preference) in the traditional importing countries of the area has caused some difficulties, they are expected to be only temporary.

Another of the major instruments, in addition to the Common and National Schedules, by which the Montevideo Treaty aims to achieve its objectives is the complementarity agreements. In the early years of operation of the Treaty, the prevailing view of such agreements was that they would basically form, together with the National Schedules, a method whereby products could be included in the Common Schedule, until the Schedule had achieved its purposes. It was thought that a specific and autonomous programme of liberalization for particular groups of products or lines of industrial production would form a suitable additional mechanism to speed up the over-all liberalization programme.

The initial régime—resolutions 15 (I) and 48 (II)—established that products coming under the complementarity agreement must be included in the National Schedules; this automatically meant that all countries benefited from the concessions in the agreement, i.e., that the effect of concluding such an agreement differed very little from the effect of including a product in the National Schedules.

Two complementarity agreements were signed under this régime. The first, concluded in July 1962, covered statistical and similar machines together with parts, accessories and punched cards, and was signed by Argentina, Brazil, Chile and Uruguay. Under this agreement, import duties were abolished between the LAFTA countries but retained for imports from third countries. The agreement has operated normally and trade has steadily increased since it came into force in 1962; in 1963 imports of such products totalled almost 360,000 dollars while in 1966—the most recent year for which data are available—they had grown to over 1.3 million dollars.

The second agreement covered electronic valves for radio and television sets, including parts and components, and was signed by Argentina, Brazil, Chile, Mexico and Uruguay. In addition to providing for the elimination of import duties between the signatory States, the agreement includes provisions to harmonize duties on imports from third countries. The agreement initially excluded certain types of valve, on the understanding that they would gradually be included over a six-year period. The list of exceptions has already been revised twice.

Unlike the first agreement, the second contains provisions designed, not to prevent the introduction of restrictions on imports of parts and components from third countries, but rather to encourage production in the LAFTA area by establishing certain requirements and at the same time setting up a commission to administer the agreement.

During 1965—the first complete year in which the agreement was in force—imports totalled 1.2 million dollars, and rose to almost 1.7 million in 1966.

These were the only two agreements which were signed during the period of effect of resolutions 15 (I) and 48 (II), i.e. over almost four years.

Resolution 99 (IV), adopted at the end of 1964, opened up new prospects for complementarity agreements by eliminating the provision making it obligatory to include products covered by such agreements in the National Schedules and by providing that countries not participating in an agreement would benefit from its provisions only if they offered adequate compensation—this, as will be realized, affects the working of the most-favoured-nation clause. The resolution also contained another exception to the clause by providing that the relatively less developed countries would be eligible unconditionally for all benefits negotiated in the complementarity agreements, irrespective of whether they were parties to them.

This new system, which did away with the automatic extension of benefits, promoted increased confidence among countries and enterprises. In 1965, the entrepreneurs attending the sectoral meetings, which, together with government efforts and the proposals worked out at a different type of entrepreneurial meeting, constitute the machinery for developing complementarity agreements, recommended the conclusion of some thirty complementarity agreements liberalizing more than a thousand items. However, the governments only signed two of them, both between Brazil and Uruguay, one covering household electrical, mechanical and heating appliances, and the other covering certain products of the electronics and electrical communication industries.

After a short transitional period, a number of factors led governments to be rather hesitant about embarking upon further complementarity agreements. One was the fear that resolution 99 (IV) might lead to a large number of bilateral agreements which would distort the concept of multilaterality that pervades both the spirit and the letter of the Treaty. Another was the concern that there might be two or more agreements on the same product which, if different countries were involved, would mean a number of different requirements with respect to origin, and thus run counter to one of LAFTA's basic principles.

The result was that in 1966, at the sixth regular session of the LAFTA Conference, Governments did not negotiate on any of the products in the proposed agreements, although they did implement more than half of the liberalization recommendations made by the sectoral meetings regarding the inclusion of products in the National Schedules.

Starting in late 1966 and continuing throughout 1967, however, complementarity agreements made a notable comeback, and proposals began to be made to transform them into something more than mere instruments for more rapid tariff liberalization.

At the end of 1967 the fifth complementarity agreement was signed, covering a large sector of the chemical industry. This agreement, which was also the outcome of the sectoral meetings, is of particular importance both because it is the first to which all the countries are parties and because of the wide range of products which have been liberalized irrevocably.

The sixth agreement—on petrochemicals—signed by Bolivia, Chile, Colombia and Peru in July 1968, is of a special nature since it contains a complete plan for the development of those branches of the petrochemical industry covered by the agreement through the planning of investment, the co-ordination of production policies and the location of plant in the various countries. It establishes an automatic and irrevocable programme of liberalization, and a common external tariff varying in accordance with the degree of processing of products. These features demonstrate the very special potential of this kind of agreement as an instrument for integration or development, in contrast with the other agreements which merely eliminate tariff barriers.[32]

In August 1968, Argentina and Uruguay signed the seventh complementarity agreement covering household goods which is the standard type of liberalization agreement with revocable concessions. Also at the negotiation stage are two agreements developed at sectoral meetings, one on glass products (Argentina, Brazil, Chile, Colombia, Mexico, Peru and Uruguay) and one on electronic products for household use (all countries). There are also a number of draft agreements which are at the stage prior to negotiation proper: on products of the household refrigerator industry (Argentina, Brazil and Mexico); on electricity generation, transmission and distribution equipment (Brazil and Mexico); on canned and preserved fruit and vegetables (Argentina, Brazil, Chile, Colombia, Mexico, Paraguay and Uruguay); on products of the electronics and electrical communication industries (Argentina, Brazil and Mexico); on valves for industrial use (Brazil, Colombia and Mexico); and on the plastics industry (Argentina, Chile, Colombia, Mexico, Peru and Uruguay).

Concurrently with these activities in connexion with complementarity agreements, mainly stemming from efforts at the entrepreneurial level—five of the seven agreements in force and the two under negotiation were initiated by entrepreneurs—another approach was developed in line with the decisions of the meeting of planning and development agencies held at Lima in 1963 and the fourth regular session of the LAFTA Conference (resolution 100 (IV)). This approach was born of the conviction that tariff liberalization alone was not enough to achieve all the aims of integration.

The adoption of resolution 100 (IV) was the reflection and outcome of this new approach, which is to seek and apply measures to promote the harmonious economic and social development of the member countries through gradual expansion of economic complementarity. The resolution listed the basic guidelines for economic policy and laid down a programme of action based on the requests to the LAFTA Standing Executive Committee and of the Advisory Commission on Industrial Development (CADI) to reactivate existing machinery to intensify efforts to promote sectoral integration, which should lead to recommendations for specific sectoral integration measures.

This machinery basically comprised the CADI study groups which cover four industrial sectors: steelmaking, pulp and paper, petrochemicals, and other chemicals. Each study group was to propose specific integration formulas for its respective sector on the basis of information and data to be supplied by all the LAFTA countries.

At its third meeting in June 1967, CADI considered the progress achieved by each of the groups which, in the case of the groups on steelmaking and petrochemicals, consisted in some proposals which could be considered as elements or formulas for integration, and had originated not only in the groups themselves but also in the LAFTA secretariat, which compiled the proposals in the form of a report.

Certain subsequent events as, for example, delays in the receipt of information from countries, made it necessary to postpone the meetings of CADI, and hence progress in this respect has been relatively slight.

The growing number of difficulties encountered by the LAFTA integration process led some countries in the region to seek a new approach through thte formation of subregional markets. In September 1967, the countries that had signed the Declaration of Bogotá, joined by Bolivia, approved the bases for the formation of an Andean market and agreed to set up the Andean Development Corporation which will be responsible for directly promoting projects of common interest to the countries concerned and providing them with technical assistance.

Independently of these internal regroupings, progress has also been made in the co-ordination of measures with respect to the convergence of the Central American Common Market and LAFTA, paving the way for the negotiation of a general treaty or whatever agreements may be required for the creation of a Latin American common market. With this in view, the LAFTA-CACM Co-ordinating Committee, which was set up in June 1967, has already begun its work and held its first meeting in October 1968.

There are, however, still some countries and territories within the region which are not part of the integration movements of these various organizations.

Some of them—Barbados, Guyana, Trinidad and Tobago and other Caribbean islands—have joined together in the Caribbean Free Trade Association (CARIFTA), which was formed in 1965, with a view to gradually liberalizing their reciprocal trade.

As can be seen from what has been said above, there are many problems hampering more rapid progress in Latin American integration. Chapter IV contains some observations that may be of help in directing the process of integration in the years to come.

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[32] See footnote 30.

(b) *The world market and exports of manufactures*

The difficulties encountered in placing manufactures on markets outside—and even inside—the region, have necessitated the adoption of various measures providing incentives which at least partly compensate for the comparative advantages accompanying competition from the industrialized countries that have traditionally dominated those markets.

The first measures to promote exports of manufactures adopted at the end of the nineteen-fifties were not always effective enough, but the experience derived from them has made it possible gradually to modify or supplement them.

Thus, various countries have provided for the exemption or refund of duties and taxes paid on imports of materials, or of other taxes levied on production, sales or export earnings.

In Argentina the drawback system, consisting in the refund of customs duties and charges paid on imports of raw materials and semi-processed products, has been in operation since 1960; the temporary admission of raw materials or semi-processed goods was provided for later, and a system for the refund of internal taxes has been in force since 1965. Brazil, too, has used the drawback system since 1957, the procedure of refunding taxes on consumption since 1964 and taxes on income since 1965, and various exchange and administrative incentives. In Colombia, imports of raw materials and equipment for the manufacture of export goods have been free of customs duties since 1959—under the Vallejo Plan, which was modified in 1964—and taxable net income deriving from those exports is exempt from income tax by virtue of Act 81 of 1960 and Decree 1,394 of 1964. In addition, there are various exchange incentives, priorities for importing equipment, spare parts and raw materials, and provisions for the extension of periods for relinquishing foreign exchange, etc. In Chile, provisions of this kind are more recent. In 1966, under Act 16,528, the Government established various exemptions from taxes affecting costs and prices, and provided for the refund of other taxes. In Mexico, a 1961 presidential decision provided for the refund of import taxes and a reduction in those levied on trade earnings and on income; there are also special subsidies for imports of raw materials used in the manufacture of export products. In Peru, the 1959 Industrial Promotion Act established the refund of specific and *ad valorem* duties levied on imports of raw materials for processing and export, and exemption from the payment of export duties. Act 17,044, adopted in 1968, maintained these two provisions for a further period of fifteen years.

In some cases, in addition to incentives based on tariff and tax provisions, financial instruments have been created to give more support to industrial exports.

In Argentina, for instance, the Central Bank put into effect in 1960 a procedure for the purchase of medium-term letters of credit for non-traditional exports, which was amplified in 1962. A year later a system was established for financing the period covered from the beginning of the productive process to shipment of the export product; in 1965 (circular B.502) additional credit support was provided in the form of loans for up to 180 days. In Brazil, the Banco do Brasil has been operating since 1962, and through its Foreign Trade Department (Carteira de Comercio Exterior—CACEX) it provides medium- and long-term financing for exports of durable consumer and capital goods, the Fund for the Democratization of Enterprises (Fundo de Democratização das Empresas—FUNDECE) began operating in 1964, and provides financing during the period of manufacture of export goods. In Colombia, the Private Investment Fund (Fondo de Inversiones Privadas), established in 1963 as a subsidiary of the Banco de la República, can finance primary and processing activities which, among other things, facilitates the expansion and diversification of exports; this bank is also authorized to grant short-term loans in order to promote non-traditional exports. In addition, the Export Promotion Fund (Fondo de Promoción de Exportaciones) was established in 1967 with the purpose of diversifying exports, strengthening the balance of payments and stepping up the volume of trade. In 1966 Chile established two credit lines—which operated through the Export Development Department of the Central Bank—to facilitate exports of various products, mainly manufactures. One of the credit lines is intended to finance pre-embarkation costs and the other to finance marketing abroad, the maximum terms being six months and two and a half years, respectively. In Mexico, the Fund for the Promotion of Exports of Manufactures (Fondo para el Fomento de las Exportaciones de Productos Manufacturados) was established in 1964 as a subsidiary of the Banco de México, with the proceeds of an additional *ad valorem* tax of 10 per cent levied on imports of luxury goods. The Fund's financial programme permits it to rediscount export documents, extend guarantees and compensate the cost of external bank guarantees. Peru's Act 17,044 of 1968 provides that public institutions must grant credit for exports of manufactures on the same terms as those in force in other LAFTA countries. Moreover, the functions of promoting and financing such exports have been assigned to the Banco Industrial, through its Foreign Trade Division, which also acts as the technical secretariat for the industrial affairs of the National Trade and Integration Committee (Comisión Nacional de Comercio e Integración). The Venezuelan Development Corporation has had two programmes in force since 1964, under which producers are provided with raw materials for their exports and six months' credit is extended to foreign buyers.

By way of supplementing the systems of credit financing, some countries have established special credit insurance systems which generally cover trade and political risks. The operations of the Fund for the Promotion of Exports of Manufactures in Mexico include the provision of guarantees covering up to five years' credit to the exporter or to the national institution that is financing him. In Brazil, export credit insurance was instituted in 1965 and operates through a consortium comprising the Banco Nacional de Desenvolvimento Econômico, the Reinsurance Institute (Instituto de Resseguros) and private insurance companies. In Chile, export credit insurance is governed by the regulations laid down in Legislative Decree No. 3 of 1967, and in Argentina a system of insurance against exceptional risks was established in August 1967 to supplement and improve the existing forms of guarantee.

Lastly, as an additional method of stimulating the sale of manufactured products abroad, some countries have launched information programmes and established direct contact with potential markets. The Foreign Trade Information Centre (Centro de Información sobre Comercio Exterior) in Mexico, which provides data on external markets, demand for products, etc., the Venezuelan External Trade Information Centres (Centros de Información Comercial en el Exterior), the Export Promotion Office (Oficina de Promoción de Exportaciones) in El Salvador, and the tours of the LAFTA countries by Brazil's National Association of Exporters of Industrial Products testify to the growing interest in strengthening contacts with other countries. Similar efforts are being made by the Ecuadorian Trade Organization for Artisan Products (Organización Comercial Ecuatoriana de Productos Artesanales), although they are more limited in scope.

The measures taken by each individual country, which have differing characteristics and effects, are being gradually focused on targets of regional interest through LAFTA and CACM, which are studying ways of co-ordinating them. IDB has been providing technical and financial assistance for strengthening trade between countries. The programme for refinancing medium-term credit for intra-regional exports of capital goods, which was launched in 1964, has produced excellent results.

Although thanks to all these measures there has been an increase in exports of manufactures during the last few years, the most important items because of their high degree of processing, such as those produced in the metal-transforming sector, have mostly remained within the narrow confines of the region and few have ever reached the world markets.

The only result of the additional steps taken in conjunction with other developing countries at the two sessions of UNCTAD to bring the developed countries to agree to the preferential or free entry into their markets of manufactures and semi-manufactures from developing countries, under a widespread non-reciprocal and non-discriminatory system, has been the establishment of a Special Committee on Preferences,[33] which is to prepare a report for consideration by the Trade and Development Board in 1969. Although the attitude of the industrialized countries, which has prevented more favourable results, is a difficult obstacle to surmount, there is no doubt that the greatest efforts that must be made are connected with the internal transformation of Latin American industry.

If, as has been stated several times in this study, the expansion of Latin America's share of world trade in manufactures is essential for its future development, every possible measure must be taken to place the goods produced in the region on a more competitive footing. This means that high levels of quality, productivity and efficiency must be attained both in producer establishments and in financing mechanisms and administrative instruments.

Further, if a substantial and sustained increase is to be obtained in exports of manufactures to the rest of the world, it cannot be based only on a few efficient major enterprises. Such concerns can initiate the process of opening up markets, but in order to maintain and expand those markets the process of industrial modernization must gradually be extended to all strata of manufacturing. This in turn will require a far-reaching reform of the outdated structures in other sectors which limit the possibilities of expanding domestic markets for industrial products.

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[33] See resolution 21 (II) in the report on the second session of the United Nations Conference on Trade and Development (TD/L.37) (April 1968).

CHAPTER IV

ELEMENTS OF AN INDUSTRIAL DEVELOPMENT STRATEGY

1. POLICIES FOR THE PROMOTION OF INDUSTRY, THE MODERNIZATION OF TECHNIQUES AND THE STRENGTHENING OF LATIN AMERICA'S ENTREPRENEURIAL CAPACITY

As indicated in chapter II, the promotion of industry has been based mainly on tariff protection, which has given rise to many difficulties, resulting in distortions in the distribution of investment by sectors and in exorbitant costs. Other instruments of various kinds have been used for the same purpose, but for one reason or another they have not always been as successful as was expected. The reorientation of policies and the redefinition of the instruments that seem to be required in this field should take into account, *inter alia*, the following questions:

(*a*) For the reasons given earlier, it is necessary to find some way of reducing or, where possible, eliminating the existing instability in the types and levels of protection applied to industry in each country in relation to both manufactured products and the imported inputs used. This instability is due to the fact that the various instruments for controlling foreign trade are used to attain the objectives involved in stabilizing the balance of payments, which are completely unrelated to any industrial development strategy. To deal with external payments problems, more recourse must be had to monetary and fiscal measures and more stress laid on the achievement of greater internal monetary stability. On the success of that initial basic objective largely depend the practical possibilities of achieving continuity in the development of industry, particularly if the aim is to improve its efficiency and techniques.

(*b*) As a supplementary measure, tariff protection must be restructured and gradually reduced, and at the same time co-ordinated with other promotion instruments (credit, fiscal exemptions, the planned creation of external economies, etc.) which can be more easily applied on a selective basis and which do not contribute directly or indirectly to raising production costs, as tends to happen when external competition is eliminated. It seems essential that the instruments used in implementing industrial promotion policy should be carefully selected in order to ensure the efficient allocation of investment.

(*c*) In some cases, tariff protection may continue to be required on an appreciable scale during a fairly long period, but it should be defined and applied on a temporary basis until the new industry can surmount the obstacles encountered in starting production instead of becoming a permanent measure, as it is today. It would be best, in this respect, if the protection afforded by the customs tariff and other foreign trade controls were brought into line with clear-cut industrial objectives of a sectoral character. This could be achieved either by making protectionist policy subject to sectoral development norms, embodied in an over-all development programme, or by adopting development programmes for specific categories of industries, by virtue of which import tariffs for both the equipment and the final products of those industries, and other development measures (credit, fiscal exemptions, etc.) would be administered in accordance with a uniform economic approach.

In practice, sectoral programming of industry has been a procedure used with some frequency by some Latin American countries, although it has important limitations. First, while sectoral programming provides for total or partial exemption from the customs duties applied, it does not generally cover the establishment of "normal" levels for those duties. Secondly, due account is seldom taken of the questions of compatibility and consistency between the different branches of industry, or between manufacturing industry and other sectors of activity or factors of production, e.g., labour (skilled and semi-skilled manpower) and credit, according to the requirements of industrial development.

Another major problem which arises in practice when the customs tariff is used as part of a set of sectoral promotion measures is that, in some cases, the customs tariff is established in such a way as to take into account both the industry which produces or is going to produce the equipment, and the branch of industry that uses the equipment as an input for its own production and which may be affected by the protection extended to the former.

(*d*) Another important step in reformulating industrial promotion policies with a view to greater efficiency would be the establishment of a systematic policy for the creation of external economies for productive investment, on the basis of complementary action in the field of public and private investment. As noted earlier, the lack of such complementarity—and in some cases the almost complete absence of co-ordination—has considerably weakened the position of the Latin American enterprise vis-à-vis its foreign competitors. To achieve such complementarity, improvements must be made in the administrative methods of planning and carrying out public investment—in roads, the power and water supplies, transport and communications, etc.—and planning procedures must take into account both public and private investment, at a sufficiently low level of aggregation, although the latter would be included only on an indicative basis.

Another consequence of efficient programming in the public sector would be the opening up of better market possibilities—and prospects of market stability—to local producers of the basic industrial equipment used by the public sector or by sectors of activity which in one way or another depend heavily on public financing, such as energy, transport, etc.

Equally important for improving the efficiency of productive investment and expanding it in the light of the comparative advantages of each country is the systematic study and evaluation of natural resources. This calls for more efficient public institutions with greater financial resources, whose action would be consistent with planning goals and priorities. The study of natural resources should normally be carried out by the public authorities, but a flexible dynamic policy in this respect should also allow advantages to be taken of the practical knowledge of enterprises engaged in exploiting those resources, through appropriate methods of public co-operation and financing.

In short, a policy designed to create external economies for productive investment would find a particularly fruitful sphere of application in each country's regional development programmes. These programmes are generally intended almost exclusively to promote public investment, as in the case of providing infrastructure for transport, communications and energy, or to promote private investment in cases where they provide powerful fiscal incentives in order to channel private capital into certain regions. It would be best, however, to combine investment in infrastructure with productive investment on a well-balanced basis through sufficiently detailed programming.

(*e*) With the partial replacement of tarif protection as an instrument of industrial promotion by other measures which may be easier to apply on a selective basis, the forms of industrial credit offered would also have to be further diversified to meet the requirements of increasingly complex industrial structures. The new forms of industrial credit that should be established in the region (or expanded and reinforced in the few countries that have already instituted them) are mainly medium-term credit for exports (including medium-term credit for production prior to exportation), internal financing of sales of machinery and equipment, supervised credit for small-scale industry, and the financing of feasibility studies and analyses.

This last type of credit constitutes a departure from the usual credit measures, since the financing of feasibility analyses requires a joint system of credit and donations or non-recoverable contributions, according to the circumstances in each case. The existence of institutional machinery for promoting and even supporting the systematic carrying out of feasibility studies for the establishment of new industrial activities with the necessary technical capacity and financial resources is of outstanding importance at the present stage of Latin American industrialization where the aim is to replace reservation of the market as an instrument of indiscriminate promotion by deliberate, selective and planned promotion.

(*f*) Lastly, it is also important for a more rational industrial promotion policy that a well-defined sectoral approach should be adopted to foreign investment policy in this connexion. That would involve not only admitting foreign capital provided it fitted into the context of clearly defined sectoral promotion programmes, but also applying the advantages and incentives established for developing the sectors concerned. Another question which is more difficult to bring into line with the broadly applicable rules, in view of the peculiar circumstances existing in each country and in each sector of industry, would be the acceptance by foreign investors of certain arrangements for association with local enterprises. The feasibility and effectiveness of this association are dependent upon the degree to which it has been possible to strengthen the Latin American enterprise; there are also certain factors deriving from the prevailing world market situation in relation to the activities in question which cannot but influence the feasibility of such an association.

The industrial promotion policies applied thus far in Latin America have almost completely neglected the qualitative aspect of industrialization, particularly relating to technology and other factors of concern to industrial enterprises, such as plant size, which has great influence on efficiency and productivity levels and the ability to compete. It is imperative to introduce progressively into Latin America's industrial policies certain provisions relating to technology, with a view to encouraging the modernization of industrial activities and the adoption of production processes and equipment that are in keeping with Latin American conditions as regards plant size, type of raw materials and other resources, wages and cost of capital, etc. This could also be done through specific technological provisions.

A first step towards a policy of technological modernization would be the adoption of provisions designed to promote competition, as an instrument for achieving technical progress and reducing production costs. Such a policy should comprise three complementary types of measures: (*a*) first, regulations would have to be laid down for restricting the power of enterprises to reach agreement among themselves with a view to manipulating prices and establishing price levels; (*b*) similarly, limits should be set on the proliferation of enterprises in one sector of activity, with due regard for the maintenance of competitive conditions in the market. With the same end in view, the system of authorizing new activities should be so regulated as to increase competition instead of diminishing it, as tends to happen in Latin America; and (*c*) a policy of moderation and progressive reduction in customs protection should be adopted in order to stimulate competition.

There are many complex practical problems involved in the definition and implementation of a technological modernization policy and this preliminary study is not the place to go into them. It must be stressed, however, that some of those problems are the result of the small size of the domestic markets for certain products and the excessively large economic size of plants in relation to those markets, which brings the objective of competition into conflict with that of achieving maximum scales of production. Each case would therefore have to be considered separately, in the light of the sector's technology, the relationship between the market and economic plant size, etc., sacrificing one objective or the other according to the circumstances of the case and the order of priority for economic policy objectives in each country.

It should also be considered that technical progress does not always depend in the same degree on the existence of competition. Competition, as a means of defending or strengthening a given relative position in the market, is a powerful engine of technical progress in certain activities, but it can be replaced by other motive forces in activities more closely linked to the public sector.

Another instrument of technological modernization would consist in encouraging the merging of enterprises in the same sector of activity and the concentration of economic plant sizes as a means of promoting production units with a larger financial capacity that would be able to face investment with longer maturity periods, which is normally the type of investment with a high technological content. This method would also enable such enterprises to maintain technical departments capable of adapting techniques and designing processes and products, and of developing costly programmes of applied technological research over an equally long period and subject to a high risk. Larger scales of production—which may or may not require a high degree of concentration, depending on the size of the market for the industry concerned—not only help to make these enterprises more financially sound, but also reinforce their solvency through the levels of investment and operational costs they permit. The public authorities have different instruments for influencing the degree of concentration of enterprises in specific sectors of industry. In this respect, it is worth mentioning the experience of the following countries, which differs in the methods used but is similar in regard to aims: in the United Kingdom, a specialized agency administers credit and technical assistance with the purpose of encouraging the reorganization and merging of enterprises; France also uses credit as an instrument for merging and reorganizing enterprises, through special procedures which are usually administered by the Ministries of Finance and Industry; and in Spain, the existing system covering compulsory licences for new activities has led to the establishment of minimum scales of operation for the manufacture of industrial products with greater economies of scale. Credit is a powerful instrument for promoting the internal reorganization and modernization of enterprises, even independently of the desire to obtain larger scales of production; in this context Latin America's traditional industries offer vast possibilities for the implementation of programmes of supervised credit or of financing combined with technical assistance.

There is, of course, the problem of making the policies favouring the concentration of enterprises compatible with those mentioned above in connexion with safeguarding competition. In the majority of cases, compatibility between those two objectives is obtained, in practice, by the selective application of each of those objectives at a sectoral level. In other cases, the general economic policy approach may require one of the objectives to be imposed without prejudice to the other and without taking the sectors of industry into account.

Another group of policies is aimed at encouraging the transfer of technical know-how from abroad, both by means of licensing agreements between enterprises and through programmes for training manpower in other countries, exchanging scientific and technological information, etc., which are organized or sponsored by various public agencies. As regards agreements between enterprises, the most powerful incentive would appear to be of a fiscal nature, consisting in granting enterprises more favourable treatment in relation to income and other taxes connected with their expenditure on acquiring technical know-how from abroad, and also fairly liberal exchange treatment in that connexion in countries where foreign exchange is controlled.

The main difficulties likely to arise from the practical application of this type of policy relate, first, to the tendency of enterprises in new industrial settings to suffer from a certain technological inertia which causes them to resort easily to agreements with other countries in order to obtain technical know-how for their operations. This tendency is fostered in some cases by over-liberal fiscal and foreign exchange treatment. Secondly, it is difficult to define technical know-how accurately, so as to avoid extending the same fiscal and exchange advantages in the case of licensing agreements covering essentially commercial brands and patents of no great technological value. This is not always an easy distinction to make in practice and it calls for a delicate process of selection which must be made by duly competent institutions.

The development of national technological research with the purpose of making better use of local resources, both natural and acquired, and of adapting foreign techniques more satisfactorily is another industrial policy aim of vital importance in reshaping Latin America's economic and social development. In addition to all the government promotion measures and incentives required in this field, it is imperative to establish provisions for improving the financing of such research activities. The many fiscal and financial measures that might be adopted to that end include two which may be of particular practical importance in spurring on industrial development. The first consists in the systematic exemption from taxes on expenditure that may be incurred by enterprises under the head of applied technological research, whether this is carried on by the enterprise itself or by duly recognized public or private institutes. The second important measure would be to regulate a system of partial subsidies extended by the public authorities for research designed to develop new products and processes, and also for research on adapting technical know-how from abroad, which is carried on and partly financed by the enterprises themselves. A similar system, but with variable operating mechanisms, is used in virtually all industrialized countries, even those where industrial development is a comparatively recent process, such as Canada, Japan, Australia, etc.

The structure and operational methods of enterprises largely reflect a country's over-all economic policy and the framework created by that policy. In the strengthening of entrepreneurial capacity, more than in other questions referred to in this chapter, there is a considerable degree of interdependence between the various over-all economic policies and guidelines, which makes it very difficult to formulate specific measures. Latin America's entrepreneurial capacity will slowly be strengthened as over-all economic policies are gradually rationalized and as the slow progress being made in economic development creates, through higher levels of education, skills that are more in line with the requirements of a modern industrialized society and provides a clearer understanding of the machinery and expedients on which such a society is based.

There are, however, some specific industrial policy issues which are worth while taking into account in order to speed up the proposed evolution.

(*a*) First, it may be useful to analyse the possible role of fiscal incentives in opening up family enterprises, since experience indicates that these enterprises offer more resistance to growth and technological modernization.

(*b*) The success of measures for the modernization of ownership and management structures of enterprises will, however, depend upon the existence of capital markets, access to which will open up a new source of financing for enterprises and favour the incorporation of more professional entrepreneurs and administrators. An adequate structure for capital markets is therefore another vital factor in strengthening the Latin American enterprise, but this objective can never be attained without first reformulating the existing monetary and tax policies and instruments.

(*c*) Another possible means of achieving the above objective is to find new legal formulas that will permit the co-operative association of national enterprises engaged in the same branch of activity for purposes of research, market surveys, the supply of raw materials, etc. by means of fiscal incentives and perhaps also of some direct assistance in the form of credit or subsidies. This policy is already being applied in some of the more industrialized Latin American countries and in developing countries in other parts of the world.

(*d*) As foreign know-how will continue to be essential for the development of Latin American industry, policies should be framed to encourage agreements with countries outside the region, while endeavouring to avoid the negative effects resulting from the technological inertia that characterizes incipient industrial settings such as those found in Latin America.

(*e*) In relation with foreign capital and enterprises, it is also necessary to explore new forms of association that will offset the relative financial and technological weakness of Latin American enterprises but will not be restrictive or repressive, or detract from the dynamic force of the joint enterprises concerned.

2. Regional integration policy

The central objective of an industrial development strategy should be to bring about a substantial improvement in the competitive power of Latin American industry so that it can fulfil its role as the motive force of overall economic development. In other words, a profound change must be made in the nature of the industrialization process so that industry may have larger markets, make the best possible use of its comparative advantage and technological progress and maintain an increasing flow of trade both with the other associated developing countries and with the developed nations. Hence, systems of industrial integration and the promotion of exports to world markets are two facets of a single strategy.

The Declaration of the Presidents of America deals in fact with both these aspects. The Action Programme designed to create a common market includes among its measures the promotion of "the conclusion of sectoral agreements for industrial complementation, endeavoring to obtain the participation of the countries of relatively less economic development"[34] and the adoption of measures "to improve international trade conditions"[35] based on systems of general preferential treatment for exports and the adoption of measures to make Latin American export products more competitive in world markets.

On the basis of these guidelines, this section offers some suggestions for the redirection of industrial integration and the promotion of exports of manufactures, bearing in mind the general observation made above that these are both aspects of a single policy aimed at making better use of comparative advantages, creating the ability to compete and introducing technological progress.

While trade liberalization has proved to be valuable in that it generates a certain amount of trade and encourages the expansion or establishment of industry, it is not enough in itself to bring about industrial integration in Latin America.

Generally speaking it may be expected that during the nineteen-seventies a system of automatic liberalization applying to all products will come into operation and that some kind of gradual tariff harmonization, aimed at achieving a common external tariff, will also probably be in its initial stages.

Within this context, agreements covering large sectors or branches of industry could be the main instrument for the promotion of industrial integration. Such agreements would lay down the ways and means for tariff liberalization and harmonization, together with complementary development or development promotion measures.

They would cover the whole range of goods produced in a particular sector or branch of industry and would contain provisions under which tariffs for the goods concerned would be liberalized more rapidly up to a point below the over-all tariff ceiling, if it were decided—as would seem advisable—that general tariffs would not be lowered to zero, so that the residual tariff would act as a kind of buffer to palliate the differences in costs and in the ability to compete that would exist during the initial stages.

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[34] See *Meeting of American Chiefs of State*, Punta del Este, Uruguay (12-14 April, 1967) (*OAS Official Records*, OEA/Ser.C/IX.1), p. 63.

[35] *Ibid.*, p. 69.

The agreements would also contain provisions to speed up the harmonization of tariffs in respect of third countries. In addition to these provisions on tariffs, they would contain other provisions covering the investment and technical assistance which would be required as a basic complement, and in some cases preparatory, to the adoption of tariff liberalization commitments.

The main purpose of such provisions covering investment and technical assistance, on which the scope of the development of the sector depends, would be to facilitate the negotiation of sectoral agreements by countries, on the understanding that ways and means would be available to enable them to improve their ability to compete to a significant extent.

A sectoral complementarity agreement of this kind might, therefore, include the following points:

(*a*) An indicative regional development programme, presenting the future development prospects of the sector, projected demand, resources available in the region, the countries likely to have difficulties in competing and a diagnosis of the situation.

(*b*) A tariff liberalization programme for the sector, stipulating the rate—more rapid than the over-all rate—and the measures of special tariff reductions and tariff harmonization, together with exceptions, special régimes, escape clauses and subregional provisions, in keeping with the characteristics of the sector and the regional development objectives of the indicative programme.

(*c*) A programme of investment and technical assistance, designed both to strengthen the countries' ability to compete and to speed up the growth of industry at the regional level in line with the objectives of the indicative programme.

(*d*) A set of provisions to harmonize régimes governing fiscal incentives, exchange regulations, social security, foreign capital, etc., in accordance with the rate and type of tariff liberalization agreed upon by the signatory countries for the sector and with the individual features of the industry concerned.

It should be pointed out that the programming features to be included in this kind of agreement would not only be designed to correct the existing situation but would also be forward-looking in nature so that enterprises could take advantage of the opportunities of an expanded market. They would, for example, range from assistance in connexion with productivity, technological improvements and surveys of domestic markets to assistance in merging or reconverting enterprises and even for new enterprises established to take advantage of the benefits of integration.

The latter point is of particular interest for the economically relatively less developed countries which might thus be able to reap very valuable benefits. Clearly, some main guidelines would have to be agreed upon which would define the particular cases to which such action should apply.

One would normally expect that a reorganization of this kind, as a basic component of an investment programme aimed either at speeding up the development of industry in the region as a whole or at moving it in particular directions, would occur to the degree that the factors determining a given situation, in which countries cannot compete with the essential minimum chance of success, are circumstantial in nature.

Having given a general outline of these sectoral complementarity agreements, which are viewed as the most suitable instrument to begin full-fledged industrial integration, it may now be useful to add some suggestions.

It must be asked, first of all, which industries or sectors these agreements should cover. The prevailing view that they should be limited to new or dynamic sectors does not seem appropriate.

For various reasons it would seem advisable to include the traditional industries in such formulas for integration. The first reason, which is of a general and quantitative nature, is that the exclusion of such industries would not be a positive step towards integration of the kind desired, i.e. integration that would have a decisive influence on the economic development of the countries of the region, particularly in view of the fact that the proportion of investment in new industries is relatively low compared with that in traditional industries.[36] Hence, it is proposed that integration should not be limited to new industries, although this approach may be of some value in the adoption of different formulas and methods.

Another reason is connected with exports of manufactures to the world market. Without ignoring the potential of the dynamic industries (generally producing intermediate and highly processed or complex goods), it is certain that the prospects, in the immediate future at least, of gaining access to the markets of the industrialized countries through the channels opened up by UNCTAD lie with the goods produced by the traditional industries, or those industries which are firmly established (textiles, made-up textile goods, food-stuffs, etc.). However, these industries will not find competition easy on the world market and therefore the kind of reorganization or reorientation advocated here, combined with participation in a scheme of regional integration, is virtually essential. Admittedly, this does not mean that there is no order of priorities for beginning work and studies on these agreements.

As noted above, a number of studies have already been undertaken on the various sectors dealt with by CADI and its study groups, for example, steelmaking, petrochemicals, fertilizers, and pulp and paper. Moreover, ECLA has completed studies on other branches, such as the aluminium, sodium alkalis and motor-vehicle industries, which provide abundant material on the basis of which the LAFTA bodies responsible for seeking formulas for integration can begin their work.

A reasonable method of laying the groundwork for the sectoral complementarity agreements might be to begin with the sectors in which some progress has already been made in LAFTA, or on which basic studies have been prepared.[37]

With regard to the traditional industries, which, as already stated, have considerable potential in terms of exports to the world market, special attention should be given to the possibility of developing a sectoral agreement to cover the food canning and preserving industry. The fact that some progress has already been made in talks between entrepreneurs, and that the prospects for increased access to the world market are very encouraging, make the possibility of co-operation in this field between the countries of the region of particular significance.

Hence, the key component of these elements of strategy will be the investment and technical assistance programme, which will parallel, or in many cases precede, the tariff liberalization programme.

These indicative programmes for sectoral development would be essentially a complement to national investment programmes in particular branches of industry. Their main objective, as stated earlier, would not merely be to rectify deficiencies so as to ensure that competition within the region gradually becomes free and widespread, but also to speed up the development of the sector until it exceeds the combined potential of the individual countries.

Sectoral investment programmes would include an analysis of development trends in the countries of the region and an identification of the weak points and deficiencies of particular branches of industry, and would provide a standard against which the trends of trade and of the location of industry could be judged and evaluated.

This would then give an idea of the investment required to meet the growth of demand, and also of the investment and technical assistance expenditure needed to overcome the rectifiable weaknesses or deficiencies, i.e., following the principles expressed above, those that were not simply the result of a lack of basic ability or resources.

Studies would show the amount of financial and technical assistance needed to place industries on an equal footing to meet regional competition; responsibility for such assistance would be collective and require close co-operation between the countries. This would not mean, however, that there would be any centralization of decisions on investment and the location of industry which are at present the province of each individual country. The development of the industrial sector would continue to be a national responsibility, in both the public and the private sector, in accordance with the organizational structure of each country, since a joint approach to the investment required to develop a branch of industry for which a sectoral agreement has been prepared and negotiated would not necessarily involve the collective responsibility of the member countries, nor would it mean that decisions about the use of the main investments or about the location of particular industrial activities would be centralized. On the other hand, it would be necessary to co-ordinate such decisions at the regional level, and this could be done through negotiations among the participating countries with a view to administering a programme of indirect industrial promotion on the basis of fiscal incentives and credits, with the accent on regional specialization. The incentives would be designed to speed up the development of industry in certain key areas with a view to distributing the opportunities for regional integration evenly throughout the region, and this distribution would be negotiated in advance among the parties.

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[36] Recent surveys of the industrial development programmes of various countries in the region show that the average amount of investment, in new industries by country, is 20 per cent, while the remaining 80 per cent goes to existing industry.

[37] In this respect it should be noted that the CADI study groups have received the reports prepared by ECLA on each of these sectors, and that ECLA has also made available to LAFTA reports and studies on other industrial sectors or branches on which work might begin.

In brief, the introduction of this element of financial and technical assistance, which combines negotiation with the financing of industrial integration, would make instruments or means available to countries to enable them to overcome or reduce the natural attitude of resistance to integration. This attitude stems from a fear of competition for which enterprises are ill-prepared, or, in some cases, from simple ignorance of the consequences of decisions of this kind. With the ideas proposed, it would be possible to hold negotiations and take decisions on a knowledgeable basis, and also to accompany such decisions with safeguards to ensure that the situation in each country is compatible with an optimum level of benefits throughout the region and thus reduce sacrifices to the minimum. Obviously, this kind of arrangement is incompatible with autarkic policies or objectives, since the principles of regional specialization are in no sense abandoned; instead they are upheld through competition on a more or less equal footing.

With respect to institutional instruments, it is possible that the regional and extra-regional funds required[38] might be collected and generally administered by existing bodies like IDB. Both financial and technical assistance would be channelled through official organs in each country; with regard to the position of the economically relatively less developed countries in the distribution of funds, there would be two alternatives: either such countries would receive a proportionally larger share of the assistance available, or they would receive their share on more advantageous credit terms.

The preceding chapter referred to the problems that arise when trying to strike a balance between the benefits of participants in order to achieve significant progress in industrial integration. To find this balance it will be necessary to use some method of measuring or quantifying such variables as contributing to the gross product, increment in net exports, etc. If this kind of balance is sought in each sectoral agreement it would probably lead to almost insuperable problems, not only because of the intrinsic difficulty of evaluating phenomena which are often very hard to quantify, for example the creation of external economies—and complementing them for the development of other industries—chain reactions, etc., but also because it may happen that the benefits in a particular sectoral agreement cannot be balanced out evenly.

Therefore, it would seem that regular rounds of negotiations for sectoral agreements relating to a number of industries are essential in order to achieve a proper balance of benefits.

3. Policy governing exports of manufactures to the world market

Several of the countries of the region have made great strides towards the constitution of a system of incentives that would enable exporters to launch out successfully for the world market. This hitherto incipient trend towards exports of manufactures is thus being duly regulated and will have a favourable impact on Latin American industrial development, far transcending the role of mechanism compensating for internal depressions which in some cases and to a varying degree it had been required to play in the past.

This will therefore be an additional means of reorienting industrial development and, among other advantages, it will introduce the dynamic element of international trade into a milieu in which competition has formerly played a very small part.

A first line of action would be to demonstrate the need for all countries of the region to adopt a consistent export promotion system, completing the existing machinery or establishing the new mechanisms required.

To begin with, each Latin American country should have a national export development institution, and where they already exist steps should be taken to improve them. This does not mean that such institutions must be established along rigid lines; obviously, due allowance has to be made for the widely varying circumstances in each country, and it is to be hoped that export promotion will be in the hands of a single agency.

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[38] At the Meeting of American Chiefs of State, held at Punta del Este, Uruguay, on 12-14 April 1967, the Government of the United States made an offer of funds.

The prime function of this national institution should be to identify products that can be exported and to explore new market possibilities for traditional exports. It would also be responsible for studies and advisory services in connexion with all other essential aspects of export promotion, which are taken care of either by other agencies or by the institution itself, according to the practice in each country. These would comprise customs and fiscal incentives, export credit or financing, quality control, information and publicity services, and other services relating to the organization of industry for the marketing of exports.

Because of their importance and the fact that they constitute weak points even in countries which have made most progress in this direction, some suggestions are made with respect to export financing and the organization of industry for the marketing of exports.

There are several aspects of financing in which action could be taken to make it more effective.

In the first place, the IDB programme for exports of capital goods could be extended to cover exports to other regions as well as intra-regional trade. The possibility should also be considered of the programme including other manufactures besides capital goods, a measure that would particularly benefit countries with insufficient markets, and still more so the economically relatively less developed nations.

Two other questions requiring special attention from Governments and international agencies are pre-embarkation financing and adequate coverage of export credit insurance. While these systems are recognized to be first and foremost a national responsibility, IDB could do much to help them operate efficiently.

In the case of pre-embarkation financing, for example, IDB could institute a system that would be applicable to cases where the operations involve large sums and the period of production is very long. As regards credit insurance, whose institution and operation in the region have been fraught with serious difficulties, various suggestions have been put forward, such as the establishment of a regional institution that would assume responsibility for commercial risks while the political risks would be taken care of by national agencies, or the establishment of a multinational institution that would take over the total coverage.

Besides these aspects of financing, another field in which government promotion could have excellent results is, as mentioned above, the organization of manufacturers with a view to the marketing and sale of their exports.

It would be advisable to include among the Governments' recognized functions of export promotion that of encouraging the combination, in varying degrees, of the export activities of several enterprises, with a view to strengthening their position on the external market. These government promotion activities could be carried out through the provision of technical and even financial assistance, the latter, for example, by means of total or partial exemption from certain taxes for the enterprises thus pooling their efforts. In a word, the aim is to encourage the formation of exporters' consortia, with which the State may or may not be associated according to circumstances.

As regards the institution of a system of non-reciprocal and non-discriminatory preferences, this has already been described as a potentially valuable tool for the establishment of a considerable flow of exports of manufactured products from Latin America to the developed countries.

It is a well-known fact that manufactures from Latin America, and from developing countries in general, are subject to higher nominal and real customs duties and charges in the industrialized countries than the technologically more advanced products in which they trade with one another. Accordingly, among other factors, the total or partial elimination of those tariff barriers could be expected, under certain conditions, to act as a fillip to the flow of exports of manufactured goods.

It is therefore considered that the developing countries should continue to press for negotiations with the developed countries at UNCTAD meetings, with the aim of reaching an agreement as soon as possible, whereby their right to play some part in satisfying the developed countries' demand for certain manufactured products would be recognized.

The possible action proposed—i.e., the improvement, or where appropriate the introduction, of a whole group of government measures to stimulate exports, such as those relating to financing and the internal organization of industry with a view to the proper marketing of exports, and the adoption of a policy designed to secure access for Latin American manufactures to the markets of industrial countries—may to one degree or another be described as practically indispensable in achieving the aims pursued, and in this respect there can be no doubt of the wisdom of making a determined effort in that direction. However, the Governments' attempts to improve export prospects and to increase the developing countries' co-operation in opening up markets, would have to be co-ordinated in the form of international action that would combine the resources of the countries and international agencies concerned in an institutional mechanism or formula which, by relating supply to demand, would create conditions in which the achievements obtained in connexion with either would be mutually reinforced. The effectiveness of the action exclusively or mainly directed at opening up markets is necessarily limited in relation to the promotion objectives aimed at. Despite the fact that to supplement this action by measures to improve supply conditions would represent a big step forward, it is considered that only by linking or realizing both these efforts can the system be perfected and have the best possible chance of success.

The proposed system for diversifying and expanding exports from developing countries would consist of two basic factors: first, these countries' commitment to prepare specific programmes for the export of manufactures, which would serve as guidelines in their negotiations at UNCTAD meetings to obtain concessions from the industrial countries; secondly, a technical assistance mechanism organized by UNCTAD, the United Nations Industrial Development Organization (UNIDO) and the regional commissions, in co-operation with the United Nations Development Programme, which would help the developing countries to comply with their undertaking to prepare such programmes.

The country programmes, which would be essentially the responsibility of the Governments, would indicate the products the country intends to export and in what quantities. They would also present the group of government measures relating to the proposed export goals, and proposals concerning the international co-operation—multilateral or bilateral—required in order to attain the stipulated targets, and also, where appropriate, proposals regarding the concessions that might be needed, or the market surveys that might be desirable, in the case of specific products.

To help countries prepare their programmes, the United Nations, in collaboration with the above-mentioned agencies, would organize a system of technical assistance which could have recourse to a team of experts drawn from the participating agencies. These experts would furnish assistance not merely in preparing the programme but also, as far as possible and on a continuing basis, in connexion with all the problems identified as arising from the preparation of the programmes, for which purpose it would be necessary to co-ordinate the activities with those of other organizations also operating in this field. With that end in view, the competent agencies should provide the services of experts to carry out those tasks.

The scene for these technical assistance activities would, of course, be the countries of the three developing regions of the world, and the experience acquired by the team of specialists in charge of these technical assistance missions to countries together with the ideas and proposals that would gradually be worked out would be vital for the success of those missions.

In the programme described briefly in the previous section, mention was made of the need, during the first stage of international co-operation, to undertake market surveys in connexion with aspects of supply. In this respect, it is considered advisable that the market surveys should be linked to the specific possibilities that might arise from the studies of supply, and that there should be the closest co-ordination between the two questions. Market surveys, because of their complexity and particular characteristics, should be conducted by firms or other organizations specializing in this type of work.

It would also be useful if the machinery, which is designed to complete this line of study by including aspects of demand, could function in co-ordination with the recently established inter-American export promotion agency,[39] which is to operate under the aegis of OAS and the Inter-American Committee on the Alliance for Progress (CIAP). Its functions are basically to facilitate access to markets for Latin American manufactures, also through market surveys by international bodies of specialists. In this wide sphere of action it should not be too difficult to avoid overlapping and duplication of work.

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[39] The Inter-American Export Promotion Centre, with headquarters at Bogotá, was set up at the fifth session of the Inter-American Economic and Social Council, held at Viña del Mar, Chile, in June 1967.

The developed countries' contribution would consist in financing these market surveys or analyses, and doing everything in their power to facilitate the tasks covered by those studies. They would further be requested—within the context of UNCTAD negotiations—to facilitate access to their markets for manufactures from developing countries and to abolish any type of restriction that might obstruct it.

MINING IN LATIN AMERICA

INTRODUCTION

This article is a first attempt on the part of the ECLA secretariat to present, in an orderly and systematic manner, some preliminary information on the current state of mining in Latin America, excluding hydrocarbons. As an indication of the probable potential of the mining reserves and resources known to exist in the region, some idea is given here of their magnitude and their importance in relation to world totals.

Primarily to encourage an exchange of views on the question, an effort is made to identify the principal problems which are thought to limit this sector's development and to suggest possible ways of remedying them.

On the basis of the trends noted in recent years and the plans and programmes under consideration or now being applied in various countries, some of the prospects for mining in the next ten years can be foreseen without undue speculation regarding the effects of scientific and technological progress in the international markets.

Although mining is not very important as a factor of employment and its contribution to the gross domestic product is over 6 per cent in only two of the countries examined, in 1967 mining exports represented nearly 2,000 million dollars, or over 20 per cent of the total value of exports from the region. The proportion is considerably more than three quarters in Bolivia, and Chile, and over half in Peru.

Latin American mining is already an important source of inputs for industry and construction, but it is clearly desirable to intensify local processing of its products.

The eagerness shown by several countries to review national policies for exploiting their natural resources—particularly those that are non-renewable—highlights the need to modernize and adapt the relevant legislation and institutional organizations. It is evident, too, that mining holds out possibilities of regional integration.

I. STATUS OF BASIC KNOWLEDGE

1. *Geological and geo-economic studies*

Survey scales

It is not easy to present a general picture of the status of both geological and geo-economic knowledge about Latin America, although the first is essential for understanding the genesis and characteristics of the deposits, and the second for determining their economic value and workability. The difficulties are mainly due to the lack of regular information and of an up-to-date record of the research carried out in the various countries. However, an attempt will be made to describe in broad outline the work done in geological research, in order to evaluate its development and present requirements.

ECLA has been concerned with these questions for some time, and in 1963 and 1965 it prepared two compendiums, one on mining resources in the region and the other on the status of geological and metallogenic research.[1]

A summary of the studies made in the region reveals that the situation differs widely from one country to another. While some countries have built up a fund of geological and mining information on certain areas through national specialized agencies that have been operating for some years, others have been unable to study the sector in depth.

The competent authorities have frequently underestimated the importance of these studies as a basis for the development of mining, with the result that technical institutions adequately supplied with staff and funds are few and far between.

There is more geological knowledge in the countries where the extractive industries are at a more advanced stage of development and where, apart from the respective national geological maps that are gradually being prepared, public and private bodies engaged in applied geology (petroleum or mining companies) have added to the stock of information. Petroleum enterprises have contributed substantially to the national fund of geological knowledge, particularly in Argentina, Bolivia, Brazil, Chile, Cuba, Mexico and Venezuela.

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[1] ECLA, *"Los recursos naturales en América Latina, su conocimiento actual e investigaciones necesarias en este campo. I. Los recursos minerales"* (E/CN.12/670/Add.1, March 1963) and Carlos Ruiz Fuller, *"La geología y la mineralogenética en América Latina"* (UNESCO/CASTALA 2.1.3, 1965), presented at the Conference on the Application of Science and Technology to Development in Latin America (CASTALA), Santiago, Chile (13-22 September 1965).

Several international organizations and a number of agencies in the more developed countries have also co-operated with institutions in the Latin American countries in carrying out geological studies. The Special Fund component of the United Nations Development Programme has already undertaken a large number of mining research projects and is in the process of executing others.

The specific purpose of these projects is to prospect for and make a preliminary evaluation of metallic and non-metallic mineral deposits, by the most up-to-date techniques and methods.

Where specific projects have been undertaken in countries whose basic geological knowledge was inadequate, the necessary knowledge has had to be obtained before or during the stage of exploration.

The Commission for the Geological Map of the World, which was established by the International Geological Congress, has prepared continental maps on a scale of 1:5,000,000 in relation to geology, tectonics and metallogenesis. As a result of the progress made in this work, a geological map is already available for a large part of the region, but much still remains to be done on the other two maps. With regard to the metallogenic map, which is the most useful from a practical standpoint in the development of mining resources, some countries have delineated their metallogenic areas fairly clearly, while others are still engaged in the planimetric location of their principal metallic ore deposits.

To sum up, the present position is as follows:

(*a*) The preparation of national geological maps on scales ranging from 1:50,000 to 1:250,000 is going ahead in some countries, and has reached different stages. It is slow work showing little progress in relation to area, particularly in very large countries with regions which are not easily accessible or in which the specialized national agencies have been recently established or receive little technical and economic support;

(*b*) For the most part, the Latin American countries have prepared some kind of national geological map on a scale ranging from 1:5,000,000 to 1:1,000,000 which represents the first synthesis for the region;

(*c*) In some countries there is a great shortage of maps on scales between 1:500,000 and 1:100,000. They are used in the search for ore minerals, particularly in such ore-bearing areas as the Andean region extending from the south of Ecuador to the central zone of the Chilean-Argentine Andes.

(*d*) The shortage of technical and financial resources suffered by most of the national agencies concerned has been partly offset in the last ten years by the mining research projects of the United Nations Development Programme (Special Fund). The activities carried out in the majority of Latin American countries should be continued, and intensified in the countries lacking the necessary technical and economic resources.

2. *Known mineral reserves and resources*

No general inventory has been made of Latin America's known mineral resources and it would be an arduous task to prepare one. However, as special attention has been paid to the metalliferous ores with an eye to marketing them, each country has a fairly clear idea of its resources in this respect, and particularly of certain ore minerals. In general, little is known about the location and quantity of non-metallic minerals.

The Latin American countries have not yet clearly determined the mineralized areas or the magnitude and quality of the reserves.

The shortcomings of geo-economic knowledge about the region are attributable not only to the above-mentioned factors—notably the weakness of the agencies responsible for drawing up inventories and evaluating, or ascertaining the existence of mining resources—but also to the lack of a uniform methodology and nomenclature for classifying the reserves. Consequently, any attempt to quantify the region's total reserves at the present time must be considered as merely indicative of possible orders of magnitude.

On this basis, a short account is given below of the relative importance of the best known mineral resources in the region and of their principal location, from which the possibilities of mining them can be determined.

The most important estimated reserves of metallic ores are bauxite, bismuth, copper, tin, iron, manganese, molybdenum, silver, lead, zinc and tungsten. Those of lesser importance are antimony, mercury, gold and uranium.

Table 1 presents a country-by-country compilation of data published on the total known reserves of these ores. The figures, which were taken from different sources inside and outside the region, were found to be highly inconsistent, and only those that appeared to be most reliable were used here. The compilation must thus be considered merely as an indication of possible orders of magnitude.

Table 1

LATIN AMERICA: ESTIMATED RESERVES OF SELECTED METALLIC ORES

(Metal content)[a]

Country	*Measured and indicated*	*Potential*
Bauxite *(millions of tons)*		
Brazil	30	173
Costa Rica	—	50
Dominican Republic	40	40
French Guiana	—	70
Guyana	150	1,000
Haiti	23	7
Jamaica	600	300
Panama	—	25
Surinam	250	2,000
Venezuela		10
Copper *(thousands of tons)*		
Bolivia	26	...
Brazil	421	...
Chile	46,000	...
Mexico	680	...
Peru	20,000	...
Tin *(thousands of tons)*		
Argentina	1	...
Bolivia	500	(300)
Brazil	3	(100)
Mexico	2	...
Peru	2	...
Iron *(millions of tons)*		
Argentina	254	138
Bolivia	—	42,000
Brazil	30,049	10,104
Chile	269	1,979
Mexico	500	...
Peru	1,025	1,102
Venezuela	2,096	...
Manganese *(thousands of tons)*		
Bolivia	20,000	...
Brazil	60,000	...
Chile	1,200	...
Cuba	800	...
Mexico	8,000	...
Lead *(thousands of tons)*		
Argentina	1,200	...
Bolivia	90	...
Mexico	3,200	...
Peru	1,400	...
Zinc *(thousands of tons)*		
Bolivia	1,000	...
Mexico	6,000	...
Peru	2,000	...
Other countries	2,000	...

SOURCE: ECLA, on the basis of various data.

[a] Except in the case of iron and manganese, where the figures refer to crude ore.

Bauxite seems to be found only in little known tropical and subtropical areas; in addition to the deposits already identified, it is expected that others will be discovered in the future as a result of the systematic exploration of those areas, which are not easily accessible because of their climate and vegetation.

According to the latest available edition of *Mineral Facts and Problems*,[2] the region's measured and indicated reserves represent 20 per cent of the world reserve, and its potential resources 22 per cent of the world total. In the period 1958-63, world measured and indicated reserve grew by 12 per cent annually and world potential resources by 8 per cent annually, but the increase was found less in Latin America than in other parts of the world (Australia, Guinea and Cameroon).

Over three quarters of the region's known bauxite reserves are in Jamaica, Guyana, Surinam and Brazil. Smaller deposits are to be found in the Dominican Republic, Haiti, French Guiana, Costa Rica, Panama and Venezuela.

The *copper* ore thus far estimated in Latin America amounts to about 30 per cent of the world reserve[3] and is found mainly in Chile and Peru, particularly in one metallogenic area, which has not yet been clearly demarcated, and which contains similar types of low-grade ore deposits and a large volume of scattered porphyry deposits. Mexico, Bolivia and Brazil, and on a lesser scale Cuba, account for smaller proportions of the remaining reserves in Latin America. Discoveries have been announced recently in Argentina and Panama.

Because of the geographical location of the metallogenic area in Peru, Chile and Argentina, and the past and present studies carried out in it, it seems likely that new mineralized areas will be discovered in the foreseeable future, possibly of the same type as those currently being worked, which are among the largest in the world.

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[2] United States Department of the Interior, Bureau of Mines, Bulletin 630 (1965), p. 21.

[3] *Mineral Facts and Problems*, op. cit., p. 283.

The region's *tin* ore reserves amount to 15 per cent of the world total and are virtually all in a metallogenic area which is mainly in Bolivia. Smaller quantities are known to exist in Argentina, Brazil, Mexico and Peru.

According to a recent evaluation for South America only,[4] *iron* ore is found in considerable quantities: measured and indicated reserves amount to 34,000 million tons, and potential resources to 55,000 million. The iron content of these ores ranges from 30 to 69 per cent and is estimated to total 47,000 million tons, which means an average content of 53 per cent.

Since iron is sometimes found in extensive deposits of low-grade ore, the reserves are not always clearly delineated; consequently, the region's share of the world reserve is somewhat uncertain. Nevertheless, in a study of sixteen countries made by the United States Geological Survey, Latin America's total reserve of 30,300 million tons is reported to represent 15 per cent of the world total.[5]

It is important to note that South America's measured and indicated reserves increased by 72.7 per cent and its potential resources by 54 per cent in thirteen years. The highest figures for reserves were recorded in Brazil, Peru and Colombia, and for potential resources in Bolivia, Chile, Surinam and Guyana.[6] In the case of Bolivia, the increase is attributable to the Mutún mine, where 72 per cent of South America's potential resources and 45 per cent of the total reserves and potential resources would appear to be concentrated.

The fact that reserves increased considerably, mainly during the nineteen-fifties, shows that prospecting was stimulated by the improvement in the world economy and the decline in the grade of several mines worked up to then.

Manganese ore in Latin America represents 18 per cent of the world total. While a large proportion of these reserves is found in Brazil and, on a lesser scale, in Bolivia, Mexico and Chile—those in Cuba and Panama being of minor importance—Ecuador's reserves may exceed all those in the rest of the region. They have not been exhaustively studied, however, and some circles hold the view that they may not be economically workable.

The region's *lead* and *zinc* resources, which are usually found together, appear to represent only 14 and 13 per cent, respectively, of the world reserves. The former are situated mainly in Mexico, Peru and Argentina, and the latter in Mexico (which possesses half of Latin America's reserves) and, on a lesser scale, in Bolivia, Argentina, Chile, Guatemala, Honduras and Peru.

There are no reliable estimates of the region's *silver* and *gold* reserves, which are found mainly in Mexico, Peru, Bolivia and Colombia.

As regards other metals, Latin America's *molybdenum* resources—a mineral found in association with copper in the porphyry copper bodies of the metallogenic province concerned—appear to be the largest in the world after those of the United States. According to estimates made a few years ago, 15 per cent of the world reserve is found in the bulk of this province, which is in Chile with the remainder in Peru.

Latin America also has important *tungsten* reserves, which are apparently exceeded only by those of the Far East (China, Korea and Burma). The reserves located in Bolivia and Brazil appear to account for about 94 per cent of the regional total, the remainder being in Peru, Argentina and Mexico.

Cuba's *nickel* reserves, consisting of laterite ores, represent a high proportion of Latin America's known reserves of this metal, and are among the most important in the world. In Brazil, Venezuela, the Dominican Republic and Guatemala, recent studies have been made of these ores, and in the last two countries specific investment projects have been considered.

Other reserves which should be mentioned are those of *antimony*, *mercury* and *bismuth*. Antimony is found mainly in Bolivia and Mexico, mercury in Mexico and, on a lesser scale, Chile and Peru; and bismuth is found together with lead, silver and tin ore in Mexico, Peru and Bolivia.

The only *uranium* reserves of importance in the region, according to the studies carried out, are in Argentina and represent about 3 per cent of the world reserve. This estimate is based on ore of different grades and the possibilities of mining them will depend on world price trends in future and on the development of nuclear energy. There are, however, potential reserves in several Latin American countries. Considerable reserves of *thorium* are to be found in Brazil.

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[4] Benjamín Alvarado, "*Evaluación de los recursos en mineral de hierro de Suramérica*", Bogotá, Colombia (1967) (mimeographed). This is an updated version of information contained in the United Nations "Survey of world iron ore resources: occurrence, appraisals and use, 1954".

[5] *Mineral Facts and Problems*, op. cit., p. 467.

[6] "*Evaluación de los recursos en mineral de hierro en Suramérica*", op. cit.

The minerals of major importance because of their use in the fertilizer industry are phosphate rock, sulphur, Chilean nitrate, and potassium compounds. *Phosphate rock* is now thought to exist mainly in Brazil, Peru, Venezuela and Colombia, whose reserves add up to approximately 175 million tons of phosphoric anhydride (P_2O_5). Peru alone, with the Sechura deposits, accounts for 70 per cent of Latin America's total reserves.

Although the exact quantity of *sulphur* obtainable from various sources in the region has not yet been determined, the most important deposits are in Mexico (salt domes) and in an area common to Peru, Chile and Bolivia, where this metalloid is of volcanic origin. There are also deposits in Guatemala, Ecuador and Costa Rica. Sulphur is also obtained by roasting pyrites, and recovered from sulphuric gases of various kinds.

Latin America's reserves and resources are merely estimated here for want of actual figures, since the studies made cannot be regarded as exhaustive. Systematic research has been performed in small areas only.

Nevertheless, there are appreciable differences between the various minerals as far as such factors as the number and accessibility of deposits, attractiveness of market prices, and prospecting difficulties are concerned.

II. PRESENT SITUATION AND RECENT TRENDS IN MINING

1. *Latin America's importance in world mining production in recent years*

For many years, Latin America has been an important supplier of mining products (see table 2). Although its mining output has not diminished in absolute terms since 1950—save that of tin, which began declining noticeably in 1954 but gradually recovered from 1959 onwards—its share of world production contracted in 1966, except in the case of bauxite and iron. The sharpest decline was in output of zinc and lead ores.

Table 3 presents the cumulative annual increase in Latin American and world output of several mining products over various periods. After the Second World War, Latin American mining failed to take as much advantage as other areas of the rise in demand resulting from the expansion of the world economy. The average annual growth rate for copper and silver during 1950-66 was slightly below the world rate. Its tendency to lag behind is more pronounced in the case of lead and zinc ores, whose average rates are 2.7 and 1.9 per cent respectively. Only bauxite production showed a slightly larger increase.

The rapid growth of Latin America's aluminium and zinc production in the years 1950-55 was due to the opening of new bauxite mines in Jamaica, the rise in bauxite production in Surinam and Guyana, and Peru's increased output of zinc. Although lead is usually found in association with zinc ore, the growth rate of output failed to increase more rapidly because the rise in Peru was partly offset by a decline in Mexico. Moreover, Bolivia has not yet regained the annual level of tin production reached early in the nineteen-fifties, and during the period of recession its share of the world markets dwindled, with serious consequences which are still making themselves felt. In the ensuing five-year periods, 1955-60 and 1960-65, the over-all growth rates declined in both Latin America and the rest of the world, but more sharply in the former.

The fact that mining production in other areas increased more than in Latin America is attributable to:

(*a*) The region's shortage of internal capital and limited capacity for organization of enterprises;

(*b*) The decisions and achievements in countries with centrally planned economies; and

(*c*) The tendency for the developed market economy countries to direct their business ventures to other producing centres, which would seem to offer more attractive conditions for development (production costs, tax laws, facilities for the recovery of capital and the remittance of profits, general stability, etc.) as well as the opportunity to extend their interests and sources of supply to different parts of the world.

2. *Principal ores and main producing countries*

Although Latin America still occupies an important place in the world as a producer of both metallic and non-metallic ores, the mining sector's contribution to the gross domestic product is not very significant (see table 4). In many cases, the value added to the minerals extracted is limited to the cost of the processes for obtaining primary concentrates and, in other cases, the higher value added is included not in the mining sector but in manufacturing, even though the latter is largely dependent upon and

Table 2

LATIN AMERICA: PRODUCTION OF SOME IMPORTANT ORES AND THEIR SHARE IN TOTAL WORLD PRODUCTION

Year	*Bauxite*[a]		*Copper*		*Tin*[b]		*Lead*		*Zinc*		*Silver*		*Iron*	
	Thousands of tons	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*	*Thousands of tons*	*Percentage of world production*
1950	3,694	44.1	478	19.0	32	19.2	361	22.3	344	16.6	2	38.1		—
1955	8,412	47.0	553	17.9	29	15.8	379	18.4	488	17.4	3	37.2		7.6
1960	12,577	46.2	795	19.3	23	16.4	390	16.8	497	15.3	3	36.5	26	10.1
1965	16,441	45.7	874	17.7	26	17.0	400	14.9	536	12.8	3	36.3	35	12.3
1966	17,574	45.6	940	18.2	28	17.2	409	14.5	536	12.3	—	36.0	38	12.1
1967	20,178	...	943	...	31	...	416	...	533	...	3	...	41	...

SOURCE: ECLA, on the basis of data taken from the *Yearbook of the American Bureau of Metal Statistics;* various issues, the information on world production includes some conjectural figures, especially for the countries with centrally planned economies.

[a] Crude ore.

[b] Excluding the countries with centrally planned economies.

Table 3

LATIN AMERICA AND WORLD: ANNUAL AVERAGE GROWTH RATES OF PRODUCTION OF SELECTED ORES

(Percentages)

Period	*Bauxite*		*Copper*		*Tin*[a]		*Lead*		*Zinc*		*Silver*	
	Latin America	*World*	*Latin America*	*World*	*Latin America*	*World*	*Latin America*	*World*	*Latin America*	*World*	*Latin America*	*World*
1950-55	17.9	16.4	2.9	4.2	—2.2	1.7	1.0	4.9	7.2	6.2	1.4	1.9
1955-60	8.4	8.8	7.5	6.0	—4.8	—5.4	0.6	2.5	0.4	3.0	1.2	1.6
1960-65	5.5	5.8	1.9	3.7	3.0	2.2	0.5	3.0	1.5	5.2	0.6	0.8
1965-66	1.3	1.4	1.5	0.9	1.4	1.2	0.4	0.9	0.1	0.7	—	—
1950-66	10.2	10.0	4.3	4.6	—0.8	—0.2	0.8	3.5	2.8	4.7	1.1[b]	1.4[b]
1955-67	7.6	...	4.5	...	0.3	...	0.6	...	0.5	...	0.9	...

SOURCE: ECLA, on the basis of various data.

[a] Excluding countries, with centrally planned economies.

[b] 1950-65.

conditioned by mining. The countries whose mining production makes the largest contribution to the gross domestic product are Bolivia, Chile and Peru. While in Bolivia and Peru this contribution increased during the last decade, in Chile it declined slightly. The figures are relatively high for Colombia because they include petroleum activities.

Table 4

SELECTED LATIN AMERICAN COUNTRIES: SHARE OF MINING SECTOR IN GROSS DOMESTIC PRODUCT, 1958 AND 1967[a]

(Percentages)

Country	*1958*	*1967*
Argentina	0.4	0.4
Bolivia	8.0	9.0
Brazil	0.2	0.5
Chile	7.0[b]	6.5
Colombia[c]	3.7	3.4
Mexico	2.3	1.5
Nicaragua	1.8	1.8
Peru	4.0	4.2
Venezuela	1.8	1.3

SOURCE: ECLA, on the basis of direct information.

[a] Excluding petroleum.

[b] 1960.

[c] Including petroleum.

The total value of the region's mining production in 1967 was 2,050 million dollars. The ores that contributed most to this aggregate value were: copper, 1,055 million dollars (51 per cent); iron, 311 million dollars (15 per cent); and bauxite, 211 million dollars (11 per cent). Next in importance came tin, lead, sulphur and zinc, which altogether accounted for 362 million dollars, or 18 per cent of the total. The aggregate value in 1963 was 1,332 million dollars; three fifths of the increase over those four years—which was more than 50 per cent—was attributable to fluctuations in unit prices (largely due to the recent armed conflicts), and the rest to actual production increments.

The production of certain ores is concentrated in a few countries of the region. In 1967, 99 per cent of all the copper mined in Latin America came from Chile, Peru and Mexico; 95 per cent of the iron from Brazil, Venezuela, Chile and Peru; nearly 99 per cent of the bauxite from Jamaica, Surinam and Guyana; 91 per cent of the zinc, from Peru and Mexico; 82 per cent of the lead from Mexico and Peru; 90 per cent of the tin from Bolivia; 91 per cent of the sulphur from Mexico; nearly 88 per cent of the silver from Mexico and Peru; 92 per cent of the manganese from Brazil and Guyana; practically all the bismuth from Peru, Mexico and Bolivia; and nearly all the nickel from Cuba.

Table 5 presents the volume of output of the main ores, by country, in 1950 and 1967.

Although in the past fifteen years the increase in mining production has tended to lag behind the growth of world demand, a number of Latin American mining products have shown sizable increments (see tables 5 and 6). Output of such ores as sulphur, iron, manganese and bauxite has grown in volume by 4,860, 1,031, 464 and 440 per cent, respectively. Smaller increases are recorded for copper, coal, zinc and silver, and reductions in the case of nitrate, gold and tin only.

The index of the volume of mining production in 1950-67 indicates a considerable increase for Venezuela (3,350 per cent) and large increments for Brazil, Jamaica and Peru (see table 7). In the first two countries the determining factor was iron, in Jamaica, bauxite, in Peru, copper and iron. Bolivia was the only country to show a decline in the index mainly because of the reduction in its tin output since 1954.

Latin America's annual mining production is apparently backed by substantial reserves whose true magnitude is not clearly defined, for the reasons mentioned above. In any case, the estimated reserves of some ores, such as iron, bauxite, copper, manganese and sulphur, hold out prospects of an appreciable boost in production (see table 8).

From an examination of table 8 it would seem that geological and mining surveys in Latin America should be directed mainly towards the search for ore minerals of which the known reserves are small, and which may come to play an important part in the economy as a result of present or future trends in demand; these include titanium, cadmium, tungsten, radio-active ores, etc., which have special rapidly expanding uses, potassium and phosphates for fertilizers, and lead, zinc and nickel.

It will be possible to make more use of relatively low-grade ores in future if new technological processes are adopted. The reserves would then increase not only with the discovery of new deposits but also with the reclassification of resources identified but formerly considered of no immediate commercial interest. For example, the economically workable reserves of iron ore have increased with the technological advances in the form of sinterizing and pelletizing.

Moreover, under-utilization of known reserves is observable in some mines, notably the smaller ones, mainly for want of economic resources and ignorance of the proper methods and systems to be used in geological and mining surveys and in the actual extraction of ores. The result is that the deposits are worked inefficiently.

3. *Technological development of the mining industry*

In order to analyse the technological development of the mining sector in Latin America it must be divided into three broad categories. The first comprises the large-scale vertically integrated enterprises, which usually cover the whole productive process including refining, and are characterized by the use of efficient techniques. The second consists of companies whose productive activities usually go as far as the dressing of the ore (concentration). They use techniques which, if not always up to date, at least enable them in many cases to reach a satisfactory level of productivity. Thirdly, there are the small mining companies using primitive techniques, in some cases not unlike those of colonial times.

The mining activities of the large-scale companies are usually in the hands of foreign private enterprises, but there are also some national enterprises, and mixed companies operating with national and foreign capital. The advanced technologies of these companies—comparable in several cases to those used in the most developed countries in the world—cover not only prospecting and extraction of ores, but also their dressing, smelting, refining, and transport (including port facilities). Examples of these are afforded by the Chuquicamata and El Teniente copper mines, the Las Ventanas copper smelter in Chile; the Toquepala copper mine, the Cerro de Pasco lead and zinc mines and the iron pelletizing plants of the Marcona Mining Company in Peru; the Cerro Bolivar iron mines in Venezuela; and the Vale do Rio Doce iron mine in Brazil.

The advanced stage of technological development reached in these extractive activities is evident from the exhaustive geological and mining surveys that are undertaken of the deposits to be worked. These are usually conducted stage by stage, in increasing detail, because of the economic risk involved. Once the element of risk has been eliminated and efficient methods are used for the extraction, dressing and recovery of the primary metal, these companies achieve a high level of productivity and low production costs which enable them to compete advantageously on the world markets.

Medium-scale mining companies, while not possessing the same characteristics as large-scale mining, generally use up-to-date techniques. Their geological and mining surveys are confined to ascertaining the existence of reserves in areas that are smaller than those covered by large-scale mining, but enable them to plan their production on a long-term basis. As a rule, they are not vertically integrated at a national level; their production cycle ends with the concentration of ores, and their output is sold either in the country itself, for smelting or refining, or directly on the world markets.

Small-scale mining presents an entirely different picture. The production cycle is generally limited to the extraction of ore and includes dressing in a few cases only. Geological and mining surveys to determine the quantity and quality of the reserves, the characteristics of the deposit, etc., are practically unknown. Moreover, small-scale mining companies use practically no mechanized extraction methods and confine their activities to the mining of easily accessible high-grade ore with a large labour force. The machinery and equipment used in the concentration of these ores is sometimes unsuitable and often obsolete.

The result is that the productivity of small-scale mining is very low and its production costs are so high that its activities can only be maintained if favoured by one or more of the following circumstances: high-grade deposits, high world prices, government subsidies, or infrastructural works nearby (roads, railways, concentration plant, etc.).

It is interesting to note that mining has contributed little to technological progress in the region, in common, indeed, with the other sectors of economic activity. Generally speaking, both the projects executed and the procedures followed in putting large-scale mining developments into operation may be ascribed to the country where the venture and investment originated. However, the contribution of Latin American technical personnel is steadily increasing in both quantitative and qualitative terms, with the result that local technicians are gradually replacing foreign specialists who formerly enjoyed seniority in certain sectors of the mining industry. This has made advanced mining techniques more accessible to the local professionals, T

LATIN AMERICA: PRODUCTION OF PRINC

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Mineral / Country	Bauxite (thousands of tons)		Copper (thousands of tons)		Tin (tons)		Iron (thousands of tons)	
	1950	*1967*	*1950*	*1967*	*1950*	*1967*	*1950*	*1*
Argentina			—	0.4	260	1,100	20	
Bolivia			4.7	6.3	31,712	27,628		
Brazil	19	250	—	3.0	183	1,306	1,351	15,
Chile			362.9	658.7			1,771	7.
Colombia								
Guyana	1,608	3,403						
Jamaica	—	9,840						
Mexico			61.7	64.8	447	456	286	1,
Peru			33.3	182.2	38	40	—	4,
Surinam	2,066	5,415						
Venezuela							127	10,
Other countries	—	1,270	21.1	27.6	—	—	4	
TOTAL	*3,693*	*20,178*	*483.7*	*943.0*	*32,640*	*30,530*	*3,559*	*40,*

SOURCE: ECLA, *Statistical Bulletin for Latin America,* vol. V, No. 1 (March 1968).

INERALS, BY COUNTRY, 1950 AND 1967

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Lead (thousands of tons)		*Zinc (thousands of tons)*		*Sulphur (thousands of tons)*		*Nitrate (thousands of tons)*		*Silver (tons)*		*Manganese (thousands of tons)*	
1950	*1967*	*1950*	*1967*	*1950*	*1967*	*1950*	*1967*	*1950*	*1967*	*1950*	*1967*
17.4	31.0	13.5	26.0	8	27			36	...	0.4	...
31.2	19.8	19.6	17.1	4	86			204	152		
2.5	21.0							1	...	86.0	544.3
3.3	0.5	0.3	1.1	15	42	1,607	886	29	101	16.7	6.9
—	1.0	—	0.3	1	20			4	3		
										—	74.9
238.1	170.0	223.5	225.0	13	1,867			1,528	1,240	14.5	34.1
61.8	162.6	77.5	253.5					418	1,145	0.7	0.4
3.5	10.0	—	10.1	—	—	—	—	165	217	116.0	43.0
357.8	*415.9*	*334.8*	*533.1*	*41*	*2,042*	*1,607*	*886*	*2,385*	*2,858*	*129.9*	*703.6*

Table 6

LATIN AMERICA: INDEX OF VOLUME OF PRODUCTION OF SELECTED MINERALS

(1950 = 100)

Commodity	*1955*	*1960*	*1965*	*1967*	*Percentage variation 1950-67*
Bauxite	229	325	439	540	440
Coal	128	142	157	168	68
Copper	115	169	182	196	96
Gold	103	90	72	61	—39
Iron	292	769	1,169	1,131	1,031
Lead	107	108	110	115	15
Manganese	135	506	641	564	464
Nitrate	96	58	72	55	—45
Silver	110	120	122	120	20
Sulphur	1,480	3,440	4,080	4,960	4,860
Tin	89	70	80	93	—7
Zinc	141	138	158	156	56
SUBTOTAL	*125*	*171*	*204*	*213*	*113*
Petroleum	140	191	238	244	144
TOTAL	*135*	*185*	*225*	*233*	*133*

SOURCE: ECLA, on the basis of direct information.

Table 7

SELECTED LATIN AMERICAN COUNTRIES: INDEX[a] OF VOLUME OF MINING PRODUCTION[b]

(1950 = 100)

Country	*1955*	*1960*	*1965*	*1967*	*Percentage variation 1950-67*
Argentina	143	215	258	260	160
Bolivia	90	66	76	90	—10
Brazil	128	300	507	565	465
Chile	111	130	158	168	68
Colombia	141	178	183	148	48
Mexico	106	114	118	119	19
Peru	165	361	412	400	300
Venezuela	1,850	4,150	3,725	3,450	3,350
SUBTOTAL	*119*	*162*	*191*	*196*	*96*
Guyana	155	170	203	235	135
Jamaica[c]	100	216	324	366	266
Surinam	151	168	210	261	161
TOTAL	*125*	*171*	*204*	*213*	*113*

SOURCE: ECLA, on the basis of direct information.

[a] Calculated by adding the commercial values of each product and multiplying by the constant 1963 price.

[b] Excluding petroleum.

[c] 1955 was chosen as the base year for the index bauxite had not yet begun to be mined.

Table 8

LATIN AMERICA: MINERAL RESERVES AND PRODUCTION, 1965-66

(Metal content)

Mineral	*Reserves[a] (millions of tons)*	*Annual output (thousands of tons)*	*Ratio of (1) to (2)*
	(1)	(2)	(3)
Antimony	0.8	15	53
Bauxite	4,800	17,000	282
Beryllium	0.3	0.5	600
Copper	67	907	74
Iron[b]	90,000	52,800	1,700
Lead	6	402	15
Manganese[b]	90	700	129
Mercury	0.02	0.8	25
Sulphur	232	1,770	131
Tin	0.9	27	33
Tungsten	0.08	4.1	20
Zinc	11	536	20

SOURCE: ECLA, on the basis of United States Department of the Interior, Bureau of Mines, *Minerals Yearbook* (1965 and 1966) *Statistical Summary of the Mineral Industry, 1966*; and *Mining Journal Annual Review*, 1966, London.

[a] Measured, indicated and potential.

[b] Crude ore.

who can thus transmit their knowledge to other production strata.

In this respect, the outlook seems brighter, particularly as several countries of the region have recently intensified the technological research carried out in some universities and specialized mining centres, with a view to introducing changes in the existing technology or developing new procedures applicable to extractive metallurgy. The United Nations Development Programme (Special Fund) is providing assistance in a number of cases.

In addition, the major extractive industries possess pilot plants designed to improve mining processes.

Another development in this field has been the establishment in 1966 of the Latin American Extractive Metallurgy Association (Asociación Latinoamericana de Mineralurgia—ALAMI), the members of which include about 400 noted mining specialists in Argentina, Brazil, Chile, Mexico, Peru and Venezuela, who are concerned with the development of this important phase of mining.

In view of the shortage of financial resources in the Latin American countries, it is advisable to concentrate on both basic research and applied and production research on some types of ores of particular interest to them, e.g., nitrate, certain potassium minerals and nickel. Steps should also be taken to encourage applied research in extractive metallurgy so as to provide permanent advisory services to medium- and small-scale mining companies regarding the most suitable production and processing methods.

The immense scientific progress made in the world over the last few decades has had definite repercussions on the mining industry. New techniques are in the experimental stage or are already being applied not only in geological and mining research but also in ore extraction and metallurgy. Mining authorities in Latin America bear a tremendous responsibility as the bulk of the region's mining products must compete on the world market with products from countries which have already developed new techniques or are about to introduce them on a broad scale. Failure to adopt new technological processes for certain minerals may seriously affect the future foreign trade of some countries of the region. A specific example is the increasing consumption of pellets in the world iron market. (Peru is at present the only Latin American country which produces this type of product; Venezuela, Argentina and Brazil have just reached the stage of planning pelletizing plants.)

Another aim should be the extensive application of new techniques in geological research. Although the methods of aerophotogeology, geochemistry and geophysics are utilized in some of the countries of the region by national geological institutes, large-scale mining companies or technical assistance agencies, they are not applied widely enough and in many cases recourse is still had to traditional methods which the developed countries regard as outdated.

4. *Degree of vertical integration: projects under way or to be initiated in the near future*

If the present chapter and some of those that follow refer to and examine certain aspects that do not fall strictly within the traditional purviews of the mining sector, it is because they may shed light on the relations between the mining and the industrial sectors from the economic standpoint. Clearly, the direct and indirect importance (because of their multiplier effect) to the developing countries of metallurgical activities closely associated with ore mining cannot be passed over in silence.

Over the past ten years, mining in the region has speeded up its vertical integration at the instigation of both private and State enterprises.

With regard to metalliferous ores, large private, State or mixed enterprises have been formed in the most important mining countries. The production of the majority of these has reached a level at which it may be considered to be vertically integrated in terms of the mining industry, i.e., the extraction of metals by smelting or refining.

The State has played an important role in this connexion in a number of countries. In Chile, the State, through the National Mining Company (Empresa Nacional de Minería), acts as purchasing agent for ores and concentrates produced by small and medium-scale mines for treatment in concentrating plants, two smelters or a copper refinery. In addition, at the refinery of Las Ventanas (capacity: 84,000 tons of electrolytic copper annually), it processes a certain amount of blister copper for one of the large mining companies. The situation is somewhat similar in the case of iron ore in Argentina, Brazil, Chile, Colombia, Mexico, Peru and Venezuela, where State enterprises participate in certain stages of the productive process culminating in the production of steel and steel alloys.

Table 9 shows the progress made by some mining industries towards vertical integration.

In Chile, 94 per cent of the copper produced in 1966 was treated metallurgically; the figure for Peru was 85 per cent and for Mexico 69 per cent; while the corresponding percentages for refining (the final stage of the copper mining industry) in these three countries were 55, 20 and 64 per cent respectively.

In that same year, virtually all lead ore production in Mexico was transformed into metal (99 per cent); the corresponding figure for Peru was 61 per cent.

With regard to zinc, Peru and Mexico, the main producers in the region, transformed 24 and 33 per cent respectively of their total zinc ore production into metal.

In 1960, Bolivia exported 92 per cent of its tin production in the form of concentrates and the remaining 8 per cent was sold as smelted tin from small-scale plants; by 1965 the proportion of concentrates exported had dropped to 86 per cent, while that of smelted tin had risen to 14 per cent.

Jamaica transformed 22 per cent of its bauxite production in 1966 into alumina (the intermediate stage in the production of aluminium), and exported the remainder as ore; in the same year Guyana transformed 33 per cent of its bauxite into alumina, while Surinam exported all its bauxite output in the form of ore.

The progress made in recent years to add greater value to mining products is evident from the number of new plants that have been set up or are in the process of being installed in the region, as described below.

(a) *Bauxite*

In Jamaica, the installation of an alumina plant at Puerto Kaiser, with an initial output of 875,000 tons is proceeding according to schedule. Early in 1967, the Government concluded an agreement with a foreign private firm to build an alumina plant at Kingston by stages over a period of ten years, at a cost about 126 million dollars.

In Brazil, the International Bank for Reconstruction and Development has approved a loan of 22 million dollars to be used in building an integrated aluminium plant. The plant will be set up in Poços de Caldas (Minas Gerais), near the bauxite deposits, using reasonably cheap hydro-electric power for the smelting and refining plants. Initial output will be 25,000 tons of aluminium ingots a year.

Table 9

LATIN AMERICA: PRODUCTION OF SELECTED MINERALS BY DEGREE OF PROCESSING

(Metal content in tons and percentages)

	1957		*1960*		*1965*		*1966*	
	Tons	%	*Tons*	%	*Tons*	%	*Tons*	%
Copper								
Chile								
Ores and concentrates	29,500	6.2	27,300	5.1	27,800	4.7	36,000	5.4
Smelted (blister)	228,900	47.7	279,200	52.5	268,700	46.0	263,100	39.8
Refined	221,200	46.1	225,600	42.3	288,800	49.3	362,800	54.8
TOTAL	*479,600*	100.0	*532,100*	100.0	*585,300*	100.0	*661,900*	100.0
Peru								
Ores and concentrates	13,700	25.0	20,500	11.1	19,000	10.7	28,200	15.3
Smelted (blister)	13,000	23.7	133,600	72.6	117,900	66.5	119,600	65.0
Refined	28,100	51.3	29,900	16.3	40,500	22.8	36,200	19.7
TOTAL	*54,800*	100.0	*184,000*	100.0	*177,400*	100.0	*184,000*	100.0
Mexico								
Ores and concentrates	1,700	2.8	8,600	14.3	22,000	31.8	23,100	31.1
Smelted (blister)	31,400	51.7	23,500	39.0	800	1.2	3,800	5.1
Refined	27,600	45.5	28,200	46.7	46,400	67.0	47,500	63.8
TOTAL	*60,700*	100.0	*60,300*	100.0	*69,200*	100.0	*74,400*	100.0
Lead								
Peru								
Ores and concentrates	67,000	49.2	58,300	44.4	67,500	43.7	56,000	38.7
Metallurgical products ...	69,100	50.8	72,900	55.6	86,800	56.3	88,800	61.3
TOTAL	*136,100*	100.0	*131,200*	100.0	*154,300*	100.0	*144,800*	100.0
Mexico								
Ores and concentrates	14,000	6.5	24,000	12.6	—	—	1,000	0.6
Metallurgical products ...	200,900	93.5	166,700	87.4	172,400	100.0	181,100	99.4
TOTAL	*214,900*	100.0	*190,700*	100.0	*172,400*	100.0	*182,100*	100.0
Zinc								
Peru								
Ores and concentrates	106,500	78.3	124,900	79.4	193,200	75.9	196,400	76.2
Slab	29,500	21.7	32,400	20.6	61,300	24.1	61,400	23.8
TOTAL	*136,000*	100.0	*157,300*	100.0	*254,500*	100.0	*257,800*	100.0
Mexico								
Ores and concentrates	186,400	76.7	218,500	80.5	162,200	72.1	147,400	67.2
Slab	56,600	23.3	52,900	19.5	62,700	27.9	71,800	32.8
TOTAL	*243,000*	100.0	*271,400*	100.0	*224,900*	100.0	*219,200*	100.0

SOURCE: ECLA, on the basis of data in Metallgesellschaft Aktiengesellschaft, *Metal Statistics, 1957-1966* (Frankfurt-am-Main, 1967).

(b) *Sulphur and phosphates*

In view of the growing world demand for sulphur and phosphates, which are important to both agricultural and industrial development, great interest is being taken in expanding production in Latin America.

In Ecuador, it is planned to invest 2.5 million dollars in the establishment of a sulphur refinery with a daily capacity of 2,000 tons; the sulphur would be obtained from the deposits near Tufino in the province of Carchí, which contain an estimated 30 million tons of reserves.

The outlook for phosphate production is less encouraging, with the exception of the plans to develop the rich deposits in the desert of Sechura (Peru), which should yield 2 to 3 million tons a year for an investment of 100 million dollars, including a fertilizer plant.

A phosphoric acid plant is to be set up in Colombia at a cost of 20 million dollars; it will use 1,500 tons of phosphate rock a day from the deposits at San Vicente de Chucuri, in the department of Santander. A start has been made on working a phosphate rock deposit at Turqueme, in the department of Boyacá, capable of yielding 300 tons per day.

In Brazil new deposits have been found in the state of Pernambuco. Reserves are estimated at around 20 million tons, over and above the 60 million tons already proven in the area.

(c) *Copper*

In Chile, plans to double copper production by 1972[7] absorbed 225 million dollars during the period 1967-68 out of a total of 500 million to be invested in all phases of copper mining.

In the Oroya region of Peru a copper rolling mill with an annual capacity of 45,000 tons has been set up at a cost of 4.2 million dollars. Peru's present copper reserves are estimated at 20 million tons of metal content, or 10 per cent of known world reserves.

(d) *Tin*

In Bolivia, programmes to expand the tin mining industry, which include technological research to improve the processing of ore concentrates, are continuing. For example, a pilot plant including a furnace with a capacity of twenty-five tons a day has been built to recover low-grade tin concentrates (Mining and Metal Research Institute—Oruro (UNDP)).

A concentration plant, with a capacity of 1,000 tons a day, is to be constructed at Catavi to process the tailings from earlier concentrating operations and also mine refuse. The initial capacity estimated for the Oruro tin smelter (20,000 tons per year) has been revised, and the construction company and the Government have agreed to start production at a capacity of 9,000 tons and to expand it subsequently to 20,000 tons.

(e) *Iron*

Several large-scale projects were launched in 1967 in Latin America relating to iron ore concentration. The Government of Venezuela signed a contract with the Orinoco Mining Company to build an iron ore concentration plant in Ciudad Guayana. The plant, which is to produce briquettes, will be the first of its kind in the world and will manufacture a super-ore with an iron content of 86.5 per cent. The initial investment is estimated at over 50 million dollars and production capacity will be 1 million tons a year. The plant should take not longer than two years to build. There are also plans to build a 20-kilometre gas pipeline with a daily capacity of 4,500 cubic metres of natural gas. Initially, one third of this capacity will be used for operating the plant and the remainder will be used for the industrial development of the Guayana region of Venezuela. Studies are also being made in the region with an eye to installing a pelletizing plant with a yearly capacity of 1 million tons.

In Brazil, the Companhia Vale do Rio Doce began to build a pelletizing plant with a capacity of 2 million tons a year.

In Chile, studies are being made with a view to setting up iron ore concentrating plants at Algarrobo and Romeral, which would go into operation in 1970 and 1972 respectively.

In Chile and Colombia, steel plants are to be expanded so as to bring their annual capacity up to 1 million and 500,000 tons of steel respectively, at a cost of 130 million and 93 million dollars.

Experiments are under way in Peru with a view to developing a mixture of ground iron ore concentrate and water capable of being pumped for transport in tankers. Owing to the purity of the concentrate, natural gas could be used to reduce the ore directly.

5. *Importance of mining as a source of employment*

The statistics available on this topic are few and inadequate and do not provide a sufficient basis for an exhaustive analysis of the importance of the mining sector as a source of employment in the region. There are several factors which make analysis difficult; first, the fact that for some countries in the region statistics include the figures for petroleum, and even in some cases figures for activities which have nothing to do with mining proper, for example the extraction of sand and gravel; secondly, the lack of continuity of employment among the sectors making up small-scale mining which creates a floating mining population that is difficult to enumerate; thirdly, the relative inaccessibility of many low-yield and labour-intensive mining operations, which are usually situated some distance away from urban centres.

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[7] Usually referred to generically as the "copper agreements" or the "Chileanization of the copper industry" (see the section below entitled: State participation in the mining industry).

Table 10 gives an initial estimate of the economically active population employed in the mining sector (excluding petroleum) for a large group of countries. The entire mining population amounts to no more than half a million persons, which means it represents less than one half per cent of the economically active population of Latin America.

Table 10

SELECTED LATIN AMERICAN COUNTRIES: ESTIMATED ECONOMICALLY ACTIVE POPULATION EMPLOYED IN THE MINING SECTOR, 1965[a]

Country	*Economically active population in mining (thousands)*	*Proportion of total economically active population (percentages)*
Argentina	20	0.3
Bolivia	56	3.9
Brazil	114	0.4
Chile	90	3.5
Colombia	65	1.1
Guyana	5	2.8
Mexico	115	0.8
Peru	63	1.6
Surinam	6	7.0
Venezuela	20	0.7

SOURCE: ECLA estimates.
[a] Excluding petroleum.

It is clear that, even in countries in which mining has an outstanding place in the economy, the importance of the mining sector as a direct source of employment is not very great. In Surinam, which apparently has the highest rate of mining employment in the region, the proportion is only 7% of the total economically active population in Bolivia, Chile, Mexico and Peru, the proportions seem to be somewhat lower.

If the more developed countries continue to introduce new increasingly capital-intensive techniques in the future, the prospects for the mining industry as a source of employment are hardly encouraging. However, the increases in production anticipated in some cases, e.g., in the copper mining industry in Chile and Peru, should provide more employment. In Chile, for example, according to a study undertaken by the Chilean Development Corporation (CORFO), manpower requirements in the mining sector as a whole are as follows:

Year	*Number of persons employed*	*Index*
1965	72,500	100,0
1970	91,750	126,5
1975	99,444	137,2
1978	105,664	145,7

The increase between 1968 and 1978 will therefore be around 30 per cent.

There will be an increase of some 14,000 in the number of persons involved in mining during the period above, which is the investment period of the "copper agreements", under which it is estimated that production will double; of these 91 per cent will be employed in large-scale copper mining.

In terms of indirect employment, matters are different. Mining is an important indirect source of employment since it is associated with many activities that supply it with the goods and services it uses in its vertically integrated productive processes (fuels, transport, building materials, explosives, tools, some equipment and machinery, etc.).

6. *Exports*

The mining industry plays an outstanding part in the foreign trade and balance of payments of several Latin American countries, in terms of both the value of exports and the volume of foreign capital invested in it.

Table 11 shows the rise in the value of exports of mining products in recent years. Particularly striking are the increases for Argentina, Bolivia, Chile and Peru, three fifths of which have been due to the rise in world prices and the remainder to the expansion of production and the amount of value added in the countries themselves. In Chile there has been an increase of almost 400 million dollars over six years, while the figure for Peru is approximately 200 million dollars.

The share of the mining sector (excluding petroleum) in the total value of regional exports has been growing little by little in recent years. In 1950 it was 8.3 per cent, by 1961 it had risen to 12.9 per cent and in 1967 it stood at 20.5 per cent (excluding the bauxite-producing countries, Cuba, Barbados and Trinidad and Tobago, for lack of data) (see table 12). These percentages are considerably higher in countries in which mining plays an important part in the economy, as for example Bolivia, Chile and Peru, whose exports of mining products in

Table 11

SELECTED LATIN AMERICAN COUNTRIES: VALUE OF EXPORTS OF MINING PRODUCTS[a]

(Millions of dollars at current prices)

Country	*1961*	*1963*	*1967*	*Percentage increase 1961-67*
Argentina	6.0	22.6	19.3	221.7
Bolivia[b]	58.4	65.5	131.3	124.8
Brazil	101.5	104.2	158.4	56.0
Chile	440.3	470.2	817.4	85.6
Mexico	140.2	181.9	170.3	21.5
Peru	217.7	198.3	386.0[c]	77.3
Venezuela	123.6	103.4	156.9	26.9

Source: ECLA, on the basis of official statistics.

[a] Excluding petroleum.

[b] These figures include costs of transport, and refining and marketing costs at place of destination.

[c] Unofficial estimate.

1967 were, respectively, 79, 89.4 and 51.1 per cent of total exports.

In the last ten years or so the relative shares of certain countries exporting mining products has altered. Those of Bolivia, Mexico, and to a lesser extent Chile, show the most significant declines (see table 13). In contrast, other countries such as Brazil, Peru and Venezuela have stepped up their share of such exports appreciably. By 1967, Peru's share had reached 20.8 per cent (compared with 5.8 per cent in 1950), mainly due to increases in copper and iron

Table 12

LATIN AMERICA:[a] SHARE OF THE MINING SECTOR[b] IN TOTAL EXPORTS OF EACH COUNTRY

(Percentages)

Country	*1950*	*1961*	*1966*	*1967*
Argentina	0.2	0.5	0.9	1.3
Bolivia	85.8	73.6	86.4	79.0
Chile	80.6	84.1	87.5	89.4
Colombia	0.3	0.3	1.0	...
Ecuador	0.02	0.1	0.2	...
Mexico	25.8	15.8	16.7	14.9
Peru	14.8	39.3	47.6	51.1
Uruguay	0.1	0.2	1.5	1.5
Venezuela	—	5.0	6.2	6.1
Total LAFTA countries[c]	8.9	13.8	18.8	...
Total CACM countries	0.2	1.6	2.3	...
Other countries[a]	0.2	5.2	4.4	...
Total *Latin America*[c]	*8.3*	*12.9*	*17.2*	*20.5*

Source: ECLA, on the basis of official statistics.

[a] Excluding Barbados, Cuba, Guyana, Jamaica, Surinam and Trinidad and Tobago, for which no data are available.

[b] Excluding petroleum.

[c] Including the figure for Paraguay which, because of its small volume of mining exports, is not listed separately.

Table 13

LATIN AMERICA:[a] SHARE OF EACH COUNTRY IN REGIONAL EXPORTS OF MINING PRODUCTS[b]

(Percentages)

Country	*1950*	*1961*	*1966*	*1967*
Argentina	0.5	0.4	0.8	1.0
Bolivia	16.5	5.1	7.0	7.0
Brazil	2.9	9.5	9.4	9.0
Chile	46.4	40.5	41.8	43.8
Colombia	0.3	0.1	0.2	...
Mexico	27.3	12.4	11.1	9.1
Peru	5.8	18.5	19.7	20.8
Venezuela	—	11.6	8.0	8.4
TOTAL LAFTA countries[c]	99.8	98.3	98.3	...
Total CACM countries	0.1	0.7	1.1	...
Other Latin American countries	0.01	1.0	0.6	...
TOTAL *Latin America*	*100.0*	*100.0*	*100.0*	*100.0*[d]

SOURCE: ECLA, on the basis of official statistics.

[a] Excluding Barbados, Cuba, Guyana, Jamaica, Surinam and Trinidad and Tobago, for which no data are available.

[b] Excluding petroleum.

[c] Includes the figures for Ecuador, Paraguay and Uruguay which, because of their small volume of mining exports, are not listed separately.

[d] Approximate figure.

production. Brazil's and Venezuela's shares rose to 9 and 8.4 per cent respectively (as against 2.9 per cent and an insignificant figure in 1950), largely owing to the boom in both countries' iron ore exports.

The countries members of the Latin American Free Trade Association (LAFTA) account for over 98 per cent of the region's total exports of mining products, but intra-regional trade is not very active.

The composition of exports has changed somewhat in the region's favour (see table 14). There have been increases, at times of appreciable size, in exports of more highly processed products from such countries as Argentina, Bolivia, Chile, Colombia and Uruguay. The increment in the share of ores and concentrates in the total figures for Latin America is mainly due to the fact that Brazil and Venezuela have become exporters of iron ore; the share of semi-processed products has consequently declined.

The share of iron and steel products in exports of processed and semi-processed mining products is substantial in Brazil (over 95 per cent for both types), Argentina (39 per cent for semi-processed and 95 per cent for processed, but mainly using imported raw materials and products), Mexico (65 per cent for processed) and Venezuela (100 per cent for semi-processed).

7. *State participation in the mining industry*

In recent years the State has tended to play a greater part in mining activities in Latin America, as regards both the mining of ore, and production.

This tendency, which has also led to greater involvement by the State in the conservation of mineral reserves, nationalization, and legal measures to protect reserved areas, has left its imprint in several Latin American countries.

Some of the measures it has taken are described below for purposes of illustration.

1952	Nationalization of the tin mines in *Bolivia*, with the Bolivian Mining Corporation (COMIBOL)—the State enterprise—made responsible for operating them.
1960	Adoption in *Venezuela* of a policy of "no more concessions" especially for iron and nickel.
1960-61	Nationalization of the nickel, copper, manganese, iron and other mines in *Cuba*, culminating in the establish-

Table 14

LATIN AMERICA: EXPORTS OF MINING PRODUCTS (FERROUS AND NON-FERROUS), BY DEGREE OF PROCESSING[a]

(Percentages)

Country	*1950*				*1961*				*1966*			
	Ores[b]	*Semi-processed*[c]	*Processed*[d]	*Total*	*Ores*[b]	*Semi-processed*[c]	*Processed*[d]	*Total*	*Ores*[b]	*Semi-processed*[c]	*Processed*[d]	*Total*
Argentina	95.8	—	4.2	100	75.9	1.2	22.9	100	26.8	2.1	71.1	100
Bolivia	93.7	6.3	—	100	91.9	0.1	8.0	100	80.2	2.0	17.8	100
Brazil	94.8	0.8	4.4	100	96.9	2.0	1.1	100	80.8	8.8	10.4	100
Chile	37.1	61.5	1.4	100	21.3	75.8	2.9	100	18.9	76.1	5.0	100
Colombia	1.2	60.2	38.6	100	1.1	37.3	61.6	100	3.9	2.0	94.1	100
Ecuador	100.0	—	—	100	100.0	—	—	100	100.0	—	—	100
Mexico	13.5	76.7	9.8	100	48.9	44.3	6.8	100	57.3	27.4	15.3	100
Peru	47.4	16.2	36.4	100	37.1	52.4	10.5	100	35.6	58.2	6.2	100
Uruguay	73.8	—	26.2	100	72.1	—	27.9	100	63.0	—	37.0	100
Venezuela	94.9	—	5.1	100	98.6	—	1.4	100	95.1	0.2	4.8	100
TOTAL LAFTA countries	41.8	51.4	6.8	100	47.8	47.0	5.2	100	43.3	48.1	8.6	100
Total CACM countries	69.2	24.7	6.1	100	81.1	8.9	10.0	100	71.6	3.6	24.7	100
Other Latin American countries	11.1	0.4	88.5	100	86.6	0.02	13.4	100	92.2	—	7.8	100
TOTAL *Latin America*	*41.8*	*51.3*	*6.9*	*100*	*48.4*	*46.2*	*5.4*	*100*	*43.9*	*47.3*	*8.8*	*100*

SOURCE: ECLA.

[a] Because of their importance, this table includes stages which are not normally considered to come under the mining sector.

[b] Crude ore and concentrates.

[c] Smelting and refinery products.

[d] Shapes, plates, angles, tubes, etc.

ment of the Ministry of Mining, Hydrocarbons and Metallurgy.

1956-66 Establishment of restrictions on exports of sulphur in *Mexico*, under which sulphur exports could only be increased if at the same time the the amount of known reserves increases. As a result, sulphur reserves had grown to 55 million tons by 1968, or more than double the amount proven at the end of 1954.

1966 Enactment of the Copper Agreements in *Chile*, under which the State became a partner of the major mining companies in order to increase copper production.

With regard to copper, Chile's experience has two important aspects: (*a*) the existence of the Empresa Nacional de Minería, whose specific function it is to promote and support small-scale mining—the least productive sector in the country; and (*b*) the policy initiated concurrently with the enactment of the Copper Agreements in 1966, under which the State enters into partnership, as a shareholder, with three large mining companies to step up copper mining and refining.

In the former case, the State enterprise buys ore from private companies and processes it at its concentration plants and two State-owned smelters, one of which is capable of electrolytic refining.

In the latter case, there is a partnership between the State and private enterprise which, because of the economic importance of the production that it will control in the near future, and also because of its institutional aspects, is worth looking at in some detail.

The agreements were concluded with the Anaconda group, the Kennecott (Braden) Copper Company and the Cerro de Pasco Corporation and relate to the exploitation of the Exótica, El Teniente and Río Blanco mines respectively.

The agreements also provide for a complementary plan to develop the medium- and small-scale mining industry.

	Million dollars
The following investment is planned:	
Agreements covering large-scale mining	420
Plans for medium- and small-scale mining ..	100–130

The State will hold 51 per cent of the shares in the El Teniente company (Kennecott-Braden), 25 per cent in the Exótica company (Anaconda) and 25 per cent in the Río Blanco company (Cerro de Pasco Corporation.)[8]

The final aim of these agreements is: (*a*) to increase copper production to almost double its present figure by 1970 and (*b*) to increase the proportion of processed products to 50 per cent by 1970, as against 25 per cent in 1965.

In Bolivia, the Bolivian Mining Corporation (COMIBOL) which was established as a result of the nationalization of the tin mines owned by three large mining groups, controls more than three fifths of Bolivian tin mining, and more than half of the wolfram and antimony mining.

In Brazil, the Vale do Río Doce company controls more than 70 per cent of the iron ore mining.

In Venezuela, the Government agreed with the Orinoco Mining Company to build an iron ore concentration plant to produce briquettes with an iron content of 86.5 per cent and possibly a million tons of pellets a year at a later stage. The total investment is estimated at 50 million dollars, and Venezuela may put up 25 per cent of the capital.

In the cases described above, State action has either assumed the form of a take-over, as with nationalization, or of participation, when entering into partnership with private enterprises. This does not hold good of Mexico, where legislation has been designed to safeguard State participation in mining, with a holding of not less than 51 per cent, when the Federal Government considers that this is desirable for the future growth of the mining industry.

8. *World price trends for certain metals over the past decade*

When it comes to the marketing of most mining products, it is common for prices to be unstable and for the countries of the region to have little direct say in fixing prices on world markets. It should also be remembered that countries have a relatively smaller economic return when their mining products are not exported in the form of refined metals.

The instability of world market prices, due to factors both inside and outside the region (production cutbacks, strikes, imbalances in the reserves of the consumer countries, economic vicissitudes, wars, etc.) often creates serious foreign trade problems in countries which depend primarily on mining for their foreign exchange earnings.

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[8] When this paper was already in course of publication, the Chilean Government came to an agreement with the Anaconda company to nationalize the installations at the large mines of Chuquicamata and El Salvador in two stages.

Nevertheless, for a significant proportion of the metals traded on international metal exchanges, the instability of prices over time does not automatically mean that there are appreciable changes in total supply, since the large enterprises in the region can, within certain limits, survive relatively frequent price cuts without having to reduce production. This is not true, however, in other strata of production, especially in small-scale mining, where a fall in prices may paralyse work on a massive scale if the State does not step in and help.

In recent years the Latin American countries have to some extent become more aggressive, either by intervening directly in the establishment of prices, as, for instance, Chile in the case of copper, or by participating in international bodies whose basic purpose is to regulate prices. These bodies have memberships comprising either producer and consumer countries, or producer countries alone, and include the International Tin Council, the International Lead and Zinc Study Group and the recently established Inter-Governmental Council of Copper-Exporting Countries (CIPEC).

Generally speaking, these bodies have been able to exert a certain stabilizing influence on markets, and their effectiveness has been proportional to the share they represent of world production capacity of the metal concerned.

Some of the price fluctuations that have occurred for the region's main products are shown below.

(a) *Aluminium*. Over the past decade aluminium prices have been relatively stable on the domestic markets of the industrialized aluminium-producing countries.

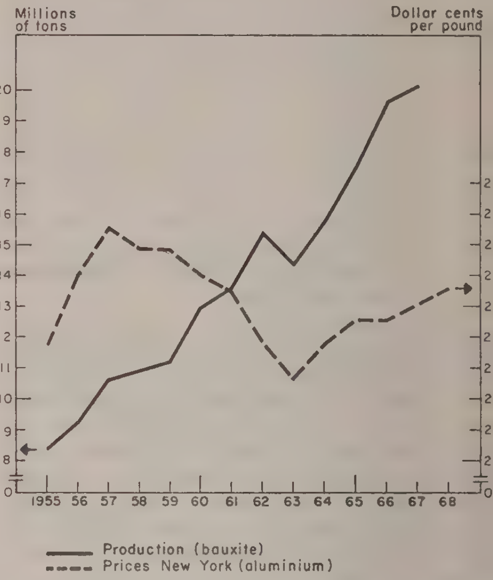
On the New York market prices in 1968 were 8 per cent higher than in 1955. During that period the greatest variation in average annual prices was 4.9 dollar cents per pound between 1963 and 1957. In 1957 the price reached a peak and then gradually fell to 22.3 cents in 1963, rising to 25.6 cents in 1968 (see figure I).

A feature of bauxite marketing in the producer countries of the region is the fact that there are no organized international markets trading in bauxite and that the prices vary a great deal. The latter is basically due to the fact that dealings in bauxite depend on the alumina content, the impurities present (iron oxide, silica, etc.), the physical and mechanical properties, size and length of contracts, etc.

Figure I

LATIN AMERICA: BAUXITE PRODUCTION AN
PRICES

(Natural scale)



Moreover, the majority of the large international companies producing aluminium also control the region's principal bauxite mines, an can thus fix artificial prices for their products

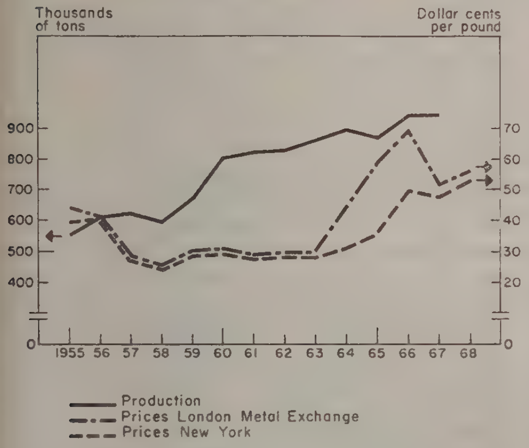
(b) *Copper*. Over the period 1955-68 coppe was one of the metals with the greatest pric fluctuation on world markets. On the Londo market its price in 1968 was 28 per cent highe than in 1955 while average annual prices fluctuated between a low of 0.247 dollars (1958) and a high of 0.695 (1966)—a range of approximately 180 per cent. On the New Yor market, the sales prices varied less than on the London market, and were 28.6 per cent highe in 1966 than in 1955, with a maximum rang of approximately 10 per cent between the average prices for 1958 and 1968 (see figure II).

From 1964 onwards, the gap between price on the New York and London markets, whic had traditionally remained at less than 5 cents began to widen appreciably. In 1964 the differential was 12.9 dollar cents (31.02 in Ne York and 43.97 in London); by 1966 it ha risen to 19.95 cents (49.5 in New York an 69.5 in London), and in 1968 it was almost normal again at close to 6 cents. Because o these sizable differences in the price of copper London market prices have had an increasin

Figure II

LATIN AMERICA: COPPER PRODUCTION AND PRICES

(Natural scale)



influence on the prices of the region's copper exports, especially those from Chile.

In 1968 the Inter-Governmental Council of Copper-Exporting Countries (CIPEC) was established, comprising Chile, the Congo, Peru and Zambia (which together account for close to 70 per cent of the western world's copper exports). Its main aim is to develop machinery to enable producers to market copper more profitably.

(c) *Tin.* There has been very little difference between tin prices on the New York and London metal markets. Over the period 1955-68 there were some sizable fluctuations and a net rise of 53 per cent on the London market. In average annual terms, prices fluctuated between a low of 0.919 dollars a pound in 1958 to a high of 1.766 in 1965—a variation of almost 92 per cent (see figure III).

These fluctuations show that one of the fundamental purposes of the International Tin Council (ITC) (established by the main producers and some large consumers), which is to stabilize tin prices, has not been satisfactorily fulfilled. Its failure to do so is probably due, *inter alia*, to the fact that ITC's buffer stock in tin and cash holdings, equivalent to 20,000 tons of tin, has turned out to be inadequate. In addition, the United States Government has sometimes caused adverse market repercussions by releasing tin from its reserves through its General Service Administration.

(d) *Lead.* The average annual price of lead on world markets fell by 12.5 per cent between 1965 and 1968, and also fluctuated considerably during that period. The highest differential was 6.4 dollar cents on the New York metal market (1966: 16.03 cents; 1962: 9.63 cents), which is a maximum variation of the order of 65 per cent (see figure IV).

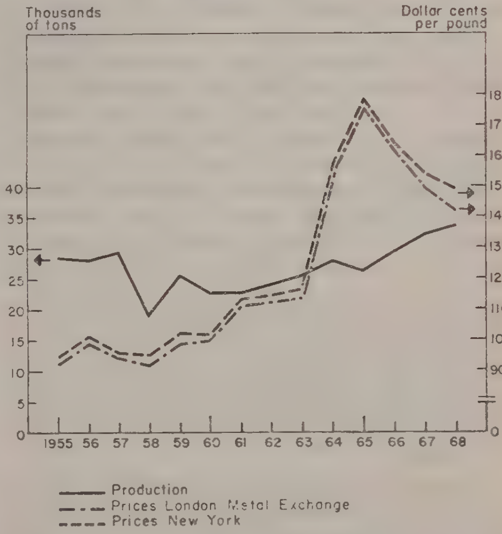
(e) *Zinc.* World zinc prices in 1968 rose by 10 per cent over their 1955 figure. During that period the most extreme fluctuations were in 1958 (10.3 dollar cents per pound) and 1966-67 (14.5 cents), giving a maximum variation of some 41 per cent (St. Louis Exchange, United States (see figure V).

Generally speaking, the prices of the main metals which Latin America sells on world markets made an excellent recovery in 1963-66, and in 1966 were at their peak for the period 1955-68, with the exception of aluminium which never exceeded the top figure reached in 1957. However, in 1967 its prices shaded downwards except for copper. The high prices obtained over the past five years were probably due to the boost in demand caused by the armed conflicts, and the decline in supply as the result of lengthy labour disputes in some producer countries.

Figure III

LATIN AMERICA: TIN PRODUCTION AND PRICES

(Natural scale)



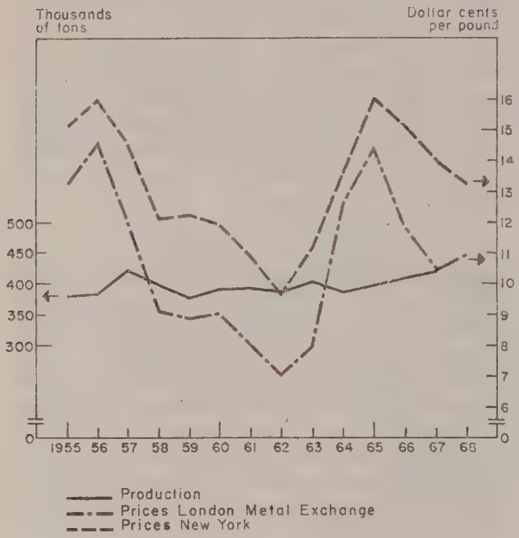
9. *Investment*

Insufficient data are available for an evaluation of total mining investment in Latin Amer-

Figure IV

LATIN AMERICA: LEAD PRODUCTION AND PRICES

(Natural scale)



ica. The only more or less complete information to hand relates to foreign investment, especially that of the United States and, more recently, Japan, which in the aggregate constitutes almost all the foreign capital invested in the sector.

There are grounds for assuming that in the region as a whole domestic investment reaches substantial figures. With few exceptions, it is placed in medium- and small-scale mining, whereas in the case of the large companies almost all investment comes from abroad.

In 1965, the cumulative investment of the United States and Japan in Latin America's mining sector (including metallurgy) totalled about 1,300 million dollars (see table 15). Out of this total, the United States accounts for approximately 1,100 million dollars, a sum which represents roughly 30 per cent of the United States investment in mining outside its own territory. More than two thirds of United States mining investment in the region is concentrated in Chile (46 per cent) and Peru (24 per cent).

Japan's cumulative investment from 1951 to 1965 amounted to about 200 million dollars by the end of the period, and was mainly concentrated in Brazil and Peru. Its approximate share in total foreign investment as shown in table 15 is, therefore, 12 per cent, but increases when investment in 1966-68 (estimated at 20 million dollars) is taken into consideration together with plans for the next few years.

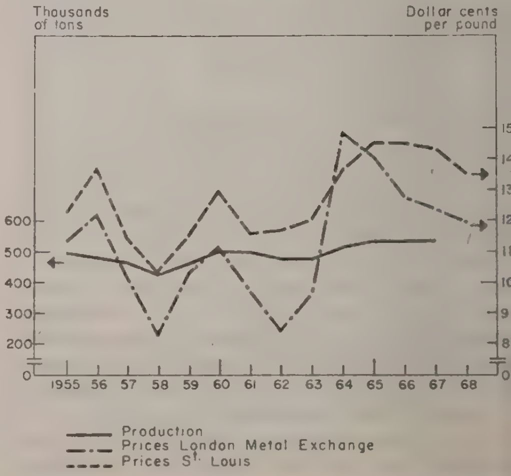
In 1958-67, the United States' annual investment in Latin American mining followed a downward trend, and by 1967 was less than half the amount invested in 1958 (see table 16). Furthermore, according to data published by the United States Department of Commerce,[9] most of this capital was drawn from funds constituted by depreciation and depletion allowances, and a net outflow of capital took place almost every year during the nineteen-sixties. The net result was a decrease of about 150 million dollars in cumulative direct investment between 1958 and 1965. Probably, however, the slow recovery observable from 1965 onwards has speeded up in recent years and will be maintained in the near future, to judge from the investment programmed for Latin America (for example, in Chile, under the agreements on large-scale copper mining).

Any attempt to evaluate the significance of the sources of external financing (loans from international organizations) should really be preceded by an analysis of domestic investment (for which, as previously stated, no data are available), since it is this investment that mainly benefits by the loans. Purely for illustrative purpose, however, table 17 has been prepared, showing the loans granted by international financing agencies to Latin American mining

Figure V

LATIN AMERICA: ZINC PRODUCTION AND PRICES

(Natural scale)



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[9] See *Survey of Current Business.*

Table 15

LATIN AMERICA: CUMULATIVE FOREIGN INVESTMENT IN MINING AND SMELTING[a]

(Millions of dollars)

Country	*1959*	*1962*	*1963*	*1964*	*1965*
United States	1,258	1,099	1,093	1,104	1,114
Japan	...	...	...	...	160
TOTAL	...	...	...	...	*1,274*

SOURCE: United States: United States Department of Commerce, *Survey of Current Business* (September issues); Japan: Inter-American Development Bank (IDB), *Boletín de la Integración* (August 1968).

[a] Excluding petroleum.

enterprises during the past ten years. It will be seen that slightly more than half the total amount was channelled into State agencies. Another point worth noting is that the Special Fund Component of the United Nations Development Programme, since its establishment, has provided capital for pre-investment studies, which by 1968 totalled nearly 18 million dollars, excluding the counterpart contributions of the beneficiary Governments.

Table 16

LATIN AMERICA: UNITED STATES EXPENDITURES ON PLANT AND EQUIPMENT IN MINING AND SMELTING[a]

(Millions of dollars)

Year	*Expenditure*
1958	420
1959	437
1960	426
1961	320
1962	395
1963	343
1964	123
1965	160
1966	214
1967	193

SOURCE: United States Department of Commerce, *Survey of Current Business* (September 1962 and September 1966).

[a] Excluding petroleum.

III. MAIN PROBLEMS OF MINING DEVELOPMENT IN LATIN AMERICA

The level of development reached so far by many of the Latin American countries has been closely linked to the extent and efficiency of the use they have made of their natural resources (soil, water, forests, fisheries, mineral deposits, fuels, etc.). In relative terms, the total contribution of such resources to the gross product is greater in the less developed countries than in those which are more highly industrialized; according to some estimates it is as much as 25 per cent in the former and drops to 5 per cent in the latter group.[10] In the past ten years, however, as pointed out above, only in four or five countries of the region has mining (excluding the petroleum sector) played a major role in their respective economies.

Given the present level of development in the region, mineral resources, besides providing the raw material essential for certain industries, will continue to represent, for some countries, their principal source of foreign exchange in the immediate future. In the countries in question, the rate of imports of capital goods (essential for industrial development) is conditioned by the expansion of mining production. In others, a similar expansion might serve to strengthen their foreign trade balances, both through increased exports and through import substitution.

Several problems are hampering the development of the sector, however, and preventing it from making a more effective contribution to Latin America's economic and social development. Those deserving special mention are discussed below.

1. *Lack of institutional and legal structures to accelerate the development of mining*

In most of the Latin American countries the authorities evince keen interest in assuming a more active role in mining activities. Nevertheless, legislation and institutions which are

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[10] See Theodore W. Schultz, "Natural Resources and Economic Growth" paper presented at the conference co-sponsored by Resources for the Future, Inc. and the Committee on Economic Growth of the Social Science Research Council (Ann Arbor, Michigan, 7 to 9 April 1960); and J. Grunwald, "Resource Aspects of Latin American Development". In: *Natural Resources and International Development* (Baltimore, The Johns Hopkins Press, 1964).

Table 17

LATIN AMERICA: LOANS EXTENDED TO THE MINING SECTOR[a]

(Thousands of dollars approved)

Country	United Nations Development Programme (Special Fund Component) 1959-68	Export-Import-Bank 1958-66	United States Government agencies 1958-60	Inter-American Development Bank 1961-67	Total
Argentina	2,325.3	—	—	—	2,325.3
Bolivia	3,883.6	—	10,400.0	7,360.0	21,643.6
Brazil	595.1	12,440.0	—	28,800.0	41,835.1
Chile	4,412.9	45,625.0[b]	—	—	50,037.9
Colombia	216.5	—	2,000.0	—	2,216.5
Costa Rica	711.1	—	—	—	711.1
Ecuador	819.6	—	—	—	819.6
El Salvador	1,595.5	—	—	—	1,595.5
Guatemala	807.7	—	—	—	807.7
Mexico	896.6	5,000.0[b]	—	—	5,896.6
Nicaragua	738.5	—	—	—	738.5
Panama	829.6	—	—	—	829.6
Peru	—	26,782.0[b]	—	—	26,782.0
TOTAL	*17,832.0*	*89,847.0*	*12,400.0*	*36,160.0*	*156,239.0*

SOURCE: ECLA, on the basis of miscellaneous data.

[a] Excluding petroleum.

[b] Loans to the private sector.

not conducive to this end still survive in several countries of the region.

This state of affairs is chiefly reflected in the absence or weakness of agencies concerned with such essential means of vitalizing and rationalizing the use of mineral resources as, *inter alia*, basic technico-economic research in fields related to the sector (geology, methods of extraction, metallurgy, costs, etc.); formulation of policies; co-ordination of activities; technical assistance and promotion; market studies; updating of mining codes; preparation of mining statistics, censuses and inventories; and vocational training.

2. *Fragmentary nature and slow progress of geological and mining knowledge regarding some areas and mining products of the region*

It is because most national authorities in Latin America fail to realize the practical importance of this branch of knowledge that in some countries there are no agencies engaged in geological and mining research, and that where they do exist their activities are generally cramped by budget considerations. The immediate consequence is a lack of properly qualified personnel by whom contemporary economic theory and technical know-how can be taught or applied at the intermediate and lower levels of the mining sector.

There is a scarcity of plans for more or less integrated geological and mining research in selected areas which would facilitate optimum use of mineral resources and would help to diversify mining activities in certain countries at present regarded as producers of a single commodity.

3. *Shortage of domestic funds and deficient organization of enterprises*

The shortage of domestic funds is particularly marked in the public sector of most of the Latin American countries, since their Treasuries invariably have to meet all sorts of high-priority requirements at the same time (in the fields of health, education, communications, transport, energy, preservation of law and order and frontier surveillance, etc.). It is partly for this reason that the heavy investment entailed by large-scale mining activities is generally undertaken by foreign private enterprise, which also possesses the requisite technical know-how.

The technical efficiency of enterprises of small and medium size—usually based on domestic private capital—is often limited for want of the financial resources required in order to attain more advanced stages of development. Furthermore, since there is always an element of risk in mining operations (the smaller the amount of geological information available, the greater it will be), and since in some cases they are liable to be reduced in scale or suspended on account of the price fluctuations to which mining products are subject, entrepreneurs sometimes prefer to transfer their profits to other sectors of the economy, with the result that mining capital dwindles still further.

Moreover, it frequently happens in the mining industry, as in other economic activities in Latin America, that organization has not progressed at the same pace in domestic enterprises as in similar concerns in other more developed countries or regions with which they have to compete on world markets.

4. *Inadequate participation of government agencies in the marketing of mining products*

In some of the ore-exporting countries, government circles do not devote enough interest and attention to ensuring that international market studies are carried out which would enable them to ascertain with great accuracy, at any time, the outlook in respect of the factors that determine prices. Such studies would afford a basis not only for the salutary regulation of marketing practices in private enterprise, but also for the timely adoption of official measures whereby temporary advantages or disadvantages deriving from the factors in question could be turned to account or palliated.

5. *Insufficient degree of vertical integration and application of modern techniques in some mining sectors*

Although in large-scale mining the application of up-to-date techniques has brought metallurgy to an advanced stage of development in some Latin American countries, especially where certain metals are concerned, in some cases smelting and refining are still carried out extra-regionally, so that the producer countries are deprived of substantial sources of income and prevented from increasing their foreign exchange earnings. Medium- and small-scale mining enterprises export their output in the form of ores and concentrates, and only a small proportion undergoes metallurgical processing within the region.

In short, the degree of processing and the techniques applied are far from optimum in broad sectors of mining activity in the region, especially in the case of certain ores, such as iron, bauxite and tin.

IV. Possible objectives and prospects

The formulation of policies in any field of action is the exclusive prerogative of each country. Moreover, even though problems common to several countries may be identified, in each case they are marked by unique characteristics and attendant circumstances which call for individual treatment. A careful study should be made of the relations between every country's mining economy and its economic and social development. Among the mining development objectives pursued, the following deserve special mention:

(*a*) Practical and realistic assessment of the potential of the most important mineral resources and the economy and social development prospects opened up by their exploitation;

(*b*) Promotion of mining production, on lines compatible with the over-all development opportunities afforded by mineral resources, through application of the methods advocated by current technology and economic considerations, as well as of State regulations and controls to ensure the efficient management of the resources in question; and

(*c*) Achievement of the highest economically viable degree of local processing of mining output.

These objectives are consistent with the other more general aims pursued by all countries, i.e., continuing development, high employment levels, price stability and balance-of-payments equilibrium. They are linked to several problems which must be briefly reviewed.

In some countries of the region, the competent authorities do not seem to have displayed enough interest in taking full advantage of the dynamic impetus which the mineral resources available could give to the economy. In others, attention has been concentrated on one or two products, and the development potential of others has been neglected.

Both these attitudes would appear to derive from insufficient knowledge of the resources at the country's disposal and of the practical possibilities which their development would open up for the economy.

It should be recalled that contemporary technology offers relatively rapid prospecting methods which permit of systematic search, thus eliminating the strong element of chance in the work of direct prospectors.

Stage-by-stage planning, based on research in increasing depth (so that one stage may serve as the basis or the technical and economic justification for the next) makes it feasible to programme the attainment of a specific level of knowledge of available resources and of the economic possibilities for their development within reasonable time-limits and at reasonable costs.

Only on the basis of properly substantiated knowledge of available mineral resources and the economic viability of working them can this sector and its true potential be incorporated into a national development plan. As over-all planning decisions involve less responsibility than decisions with respect to the investment that should be effected in the immediate future, the basic data do not need to be particularly precise; on the contrary, very meticulous research at the stage of the over-all studies is a waste of time and resources.

It should be recalled that the United Nations Development Programme is doing valuable work in connexion with this type of research in several Latin American countries.

The second objective implies that once the true scope and nature of the benefits that may accrue to economic and social development from mining activities have been established, a clear-cut policy should be formulated for the promotion of the sector, which will not only mean that large mining enterprises can be developed, but will also provide guidance and stimulus for medium- and small-scale enterprises.

The mere consideration that mineral resources are not renewable might seem to advocate developing them very gradually, with due regard to the long-term as well as to the present requirements of the community. From the economic standpoint, however, the concept of the "conservation" of non-renewable natural resources current in the literature of the subject implies determining appropriate rates of exploitation in relation to a pre-established development policy; and in this connexion, the authorities responsible in each country for the formulation of mining policies and the establishment of objectives should carefully weigh two important aspects of the question.

The first relates to the apparent disproportion between the immense size of the region's reserves of some minerals and the extent to which they are currently worked.

The second concerns the replacement of a resource kept idle in the bowels of the earth, and therefore marginal to economic life, by capital goods and infrastructure projects (induced effects of mining production), which make an immediate contribution to the continuing generation of wealth and to the improvement of employment levels, with the consequent rise in levels of living.[11]

Since, in the first place, world market prices of ores are subject to many factors beyond the control of a specific exporter country, and, secondly, mining production is influenced by factors that are highly sensitive to local government decisions, mining policies should be formulated within a well-defined framework of over-all economic policy, and a careful study should be made of the ways in which the former might be affected by any change in the latter. Special stress must be laid on the close linkage between mining policies and exchange foreign trade and labour policies.

The suggestion that the promotion of mining production should be subject to State regulation is intended to underline the desirability of maintaining this type of control. At the same time, once the benefits which the promotion of mining activities will signify for the economy and for social development have been assessed, the only cases in which obstacles might be placed in its way would be those really involving external intervention in government planning. In other words, while foreign private enterprise may play an important role in supplementing local efforts to explore and develop the region's mining resources, it will be for the country concerned to establish and enforce such norms as it may deem equitable and conducive to rapid economic and social development.

The intention implicit in the third objective mentioned—i.e., ore minerals should undergo the highest possible degree of processing in their country of origin—is to maximize their contribution to the national product. For example, in the case of mining exports, the value added would be higher with the ensuing increase in foreign exchange earnings, and subsequently the costs of transport to the consumer markets would be minimized by the elimination of the gangue. Moreover, the materials required for the promotion of manufacturing industry would be available locally.

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[11] The aim should be to ensure that even such parts of the over-all infrastructure induced by mining production as are geared to mining itself fulfil broader multiple functions.

Action on these lines should be adjusted to the real world market situation (demand and trade restrictions), and consideration should also be given to the possibility of financing, in local currency and foreign exchange, the necessary investment in smelters and refineries and in industries producing the other essential inputs. Here it should be recalled that for many metallurgical processes a great deal of energy —mainly electric power—is needed, as well as considerable quantities of water, often with very definite physico-chemical properties. Consequently, feasibility studies should take into account the requisite investment in power stations, in reservoirs, conduits and water treatment plants, and in all the necessary infrastructure projects.

Production prospects

Unfortunately, data on plans and projects for the expansion of the mining industry in the Latin American countries over the next ten years are very far from complete. Similarly, estimates of the value of mining output are highly unreliable, although there can be no doubt that their fulfilment will largely depend upon the relevant world market quotations.

It is commonly considered that the high prices quoted for metals today—mainly as the result of international conflicts and labour unrest—would decline if these causes were removed. Similar effects are likely to derive from the increasingly keen world market competition among countries exporting mining products, as well as from the progress of technology and economies of scale in exploration, extraction, metallurgy and transport, and the emergence of alternate materials which are superseding the metals traditionally used for given purposes. On the other hand, the rapid growth rate of world population, the improvement in income levels and distribution, the scientific and technical advances which broaden the fields of consumption of minerals, etc., should prevent prices from dropping unduly low.

On the basis of certain official data, various publications and the opinions of local technical experts working in the mining sector, a few estimates have been prepared, which give a purely approximate idea of production prospects for specific ores, up to 1980, in the countries where mining is most important.

Bolivia. In 1967, the value of mining exports was 131 million dollars.[12] Of this amount, approximately 70 per cent corresponded to tin ores (27,400 tons); 8 per cent to tungsten (1,900 tons); 5.1 per cent to silver (141 tons); 4.9 per cent to antimony and copper (11,500 and 6,300 tons, respectively); and approximately 3.5 per cent to lead and zinc (20,300 and 16,700 tons, respectively).

By 1980, it should be technically and economically feasible (on the assumption of balanced development) to expand production of tin and lead by 50 per cent; that of tungsten, silver and antimony by 80 per cent; and that of zinc by as much as 400 per cent (Mina Matilde project).

Irrespective of the expansion of production and possible price fluctuations, Bolivia should profit more substantially by its tin production once the national smelter enters operation, as the value added of the exported product will then be higher, and railway and maritime freight costs will be appreciably reduced by the elimination of the gangue.

Brazil. In 1966 total mining output reached a value equivalent to 280 million dollars,[13] estimated on the basis of international quotations. Iron accounted for 64 per cent of this amount, with 23.3 million tons of ore; and manganese and coal for 14 per cent each, with 1.5 million and 3.4 million tons respectively.

In the same year, mining exports totalled 143 million dollars. According to estimates, by 1980 it will be technically and economically feasible to produce more than twice as much iron as at present and to increase production of manganese by approximately 30 per cent.

Chile. The value of mining output amounted to a little over 800 million dollars in 1967, of which 85 per cent corresponded to copper, nearly 9 per cent to iron and less than 4 per cent to nitrate. The metal content was 645,000 tons in the case of copper, 6.5 million tons in that of iron, and 870,000 tons in that of nitrate.

According to the plans extant, outstanding among which are those envisaged in the copper agreements, it is estimated that in relation to the 1967 figure copper production may increase 50 per cent by 1970 and 100 per cent by 1972; thereafter, up to 1980, the rate of expansion is expected to be much slower.

Iron output in 1980 may exceed that of 1967 by 30 per cent, provided mainly that concentration and pelletizing plants are installed. Nitrate production is expected to remain unchanged or decrease slightly, for want of markets.

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[12] This figure includes costs of transport and costs of refining and marketing at points of destination.

[13] At the free exchange rate of 2.22 cruzeiros to the dollar.

Apart from possible price fluctuations, the value of copper and iron production should increase faster than the actual volume of output, since the percentage of local electrolytic refining of copper is expected to rise, and iron concentration and pelletizing plants will probably be constructed.

Mexico. To judge from the available data, up to 1980 the growth of the mining sector as a whole is likely to keep pace with that of domestic demand, and the current value of exports will probably undergo no change.

Peru. The value of mining exports exceeded 390 million dollars in 1967.

Copper accounted for approximately 54 per cent of this value, with 182,000 tons; iron, for a little over 16 per cent, with 4.8 million tons; silver, for 11 per cent, with 1,145 tons; zinc, for 9 per cent, with 162,000 tons; and lead, for 8 per cent with 253,000 tons.

The existing plans for the expansion of copper mining (Cuajone, Cerro Verde, Cobriza, Antamina, Michiquillay, Quellaveco, *inter alia*) suggest that the 1967 production figure may be trebled by 1980, and doubled as early as 1972. By 1980, too, it should be economically feasible to produce twice as much silver and zinc as at present, and to increase production of iron and lead ores by approximately 50 per cent.

To sum up, it is estimated that by 1980 mining output in Latin America (excluding hydrocarbons) may be virtually doubled in relation to 1967.

V. Components of a mining development strategy

The mining sector in Latin America is far from having attained the stage of development which the scale of its known and potential mineral resources would appear to warrant. The indifference of the authorities in some countries with respect to this field of activity, and the consequent administrative inertia which has perpetuated old-fashioned technical and economic systems, are, broadly speaking, the reasons why the dynamic impetus of the mining industry as a whole has fallen short of what might have been expected.

It is not merely that resources which could be of appreciable benefit to the economies concerned are not intensively exploited; in addition, in many instances, too little effort is made to increase the value added to the ores extracted. Even if at the national level mining is not a major source of employment, it is the only possible one in certain arid parts of several countries.

A few of the key factors in mining policy are discussed below.

1. *Legal and institutional structure*

An indispensable step is to adapt the legal structure to the real political, economic and social situation of today, and to improve upon the instruments of traditional mining law which in most of the Latin American countries date from decades back. Moreover, the original legislative structure has gradually lost consistency as the result of frequent piecemeal reforms occasioned by the pressing need to solve specific problems. Hence provisions often exist which are somewhat conflicting or difficult to interpret.

The aim of many mining codes is to encourage the search for minerals by offering prospectors all sorts of legal inducements, but in practice diametrically opposite results have often been produced. The mere fact that the taxes payable are generally very low (owing to sharp devaluations of the currency among other reasons) has enabled large mining concessions to be kept idle for purposes of speculation. For example, it is not uncommon, although unjustifiable, that the developed parts of areas rich in metalliferous ores are very much smaller in extent than the unexploited concessions.

To remedy such defects as these, the legislation governing the various phases of the mining industry should be modernized.

Furthermore, the progress made and the increasing economic importance acquired by mining in several of the Latin American countries means that administrative agencies must be rationalized and hierarchized, or established where they do not exist, so that on the basis of proper co-ordination, a flexible and complete instrument may be made available for direction, planning and supervision throughout the sector, and duplication of functions may thus be prevented. It is essential for periodic mining censuses to be taken in the various countries to pave the way for the formulation of sound mining policies.

As in many instances legal provisions have to be supplemented by technical and economic decisions, mining authorities should possess specialized knowledge or should have adequate advisory assistance at their disposal, so that they can act fairly flexibly within the limits set by relatively broad legal precepts.

A policy for the promotion of the mining industry should begin by making budget allocations proportionate to the importance of the function concerned, so that the responsible agencies can maintain a permanent staff of high-level personnel and can count on the material resources required for the efficient performance of their tasks.

2. *Promotion of technical and economic research*

The administrative organization suggested for the mining industry would include services in the fields of planning, promotion and technical and financial assistance (essentially for the more backward sectors of the industry), statistics, marketing, technical and economic research, etc.

Special emphasis is placed on the last-named services, since it it through them that progress in respect of technology and economic analysis for the benefit of the sector can be rationally encouraged or applied, in objective subordination to national development requirements. They would cover not only prospecting and evaluation of resources, but also extraction, beneficiation and marketing procedures. Each country should devote maximum effort to the relevant research, since if it is to secure a competitive foothold in world markets, it must take advantage not only of the most favourable neutral characteristics of its production centres, but also, on a selective basis, of the steady flow of new procedures generated by science and technology. Failure to do so would weaken the Latin American countries' competitive position and widen the gap between them and the more developed countries.

The competent government agencies should make a continuing study of world market prospects for the mining products of most concern to each country. Such a study involves analysing technical and economic production trends in competing countries, the growth of proven world resources, tendencies towards substitution of alternate products for the minerals concerned and possibilities for new uses, etc.

This type of information is an indispensable requisite for the formulation of policies in respect of the mining industry and allied economic activities, including decisions regarding the rate at which prospecting for mineral deposits should take place, the expansion of production capacity, the introduction of changes in the technical procedures applied, etc.

Generally speaking, the promotion of geological surveys for mining purposes is a need that must be met without delay in many countries of the region. On various occasions, a specific stage-by-stage balance between extensive exploration and intensive exploration in a given area has been advocated. The most up-to-date methods afforded by contemporary technology should be applied gradually, on the basis of progressive increases in precision of surveying and in costs, provided that their use is economically justifiable.

As a rule, if additional surveys are undertaken in or very near selected areas where mineral deposits have been found, greater advantage can be taken of the expenditure already incurred, to determine once and for all the real extent of their mining potential.

Technological research, chiefly directed towards perfecting metallurgical procedures already in use or discovering others which may be better suited to local conditions, should be the object of special attention on the part of the authorities concerned, so that impetus may be given both to the development of the sector and to the scientific and technological research which is so necessary in the under-developed countries.

In this connexion the training of personnel for mining and allied activities should be improved at all levels in both quantitative and qualitative terms.

3. *Entrepreneurial activities and financing*

The preparation of projects and programmes for the exploration, development, production and beneficiation of deposits and ore minerals in Latin America, apart from the undertakings of foreign private enterprise, will raise acute financial problems.

This situation reflects not only the restrictive effects of under-development on investment potential but also certain economic characteristics of mining industry which are not favourable to new investment. Outstanding among these is the element of risk which is particularly in evidence at the stages of geological and mining exploration. Moreover, when the aims pursued include diversification, modernization and vertical integration, even within such moderate limits as those suggested in the foregoing sections, the capital needed may be relatively substantial, and will often take a long time to yield returns.

It is assumed that in Latin America public enterprise will in general play an important part in the development of mining during the phase of basic research, although, as in the past, private enterprise may also make significant contributions. The resources at the disposal of public enterprise should be allocated primarily to those studies which, as the research proceeds, can be seen to offer more immediate inducements to the regular sources of financing including the re-examination of mines formerly worked but currently regarded as marginal. They might be brought into operation again if advantage were taken of up-to-date techniques and better price prospects for the product concerned.

In principle, public funds, especially budget allocations, should be applied for complementary purposes, and should be channelled mainly into mining infrastructure projects, which would not otherwise be executed.

To prevent duplication of work, the basic stock of knowledge gathered by the various public and private enterprises and institutions concerned with cartography, geological and geophysical research, photo interpretation, and mining activities (including extraction of hydrocarbons) should be centralized in a government office of technical documentation.

State financial assistance will also be indispensable at the subsequent stages, especially where policies for the nationalization of the sector exist, since the research and studies required for the formulation of specific commercial exploitation projects may prove very costly, and domestic private capital is seldom invested in this phase of the mining industry.

Thenceforward, mining enterprises become comparable with other industrial activities as far as commercial risks are concerned, and the need for large-scale investment, and even for heavy expenditure on infrastructure, is generally found to persist.

As a rule, the regular domestic or foreign sources of capital and credit can be drawn upon only at relatively advanced stages in the development of mining projects.

In the initial phases, apart from its fiscal resources, the State can rely only upon financial assistance from the United Nations Development Programme (Special Fund Component) and possibly from the Inter-American Development Bank, and upon technical assistance from foreign government agencies.

At the more advanced stages of mining and construction projects, possible sources of financing are private and/or public domestic capital, foreign capital, bank credits, and contributions from foreign government agencies.

These sources are accessible to public, private or mixed mining concerns (based on public and private, domestic and foreign capital), provided that the conditions established for other types of enterprise are duly fulfilled. Nevertheless, particularly in respect of private capital and bank credit, mining enterprises will have to face keen competition from the manufacturing and business sectors, for which the capital market is more familiar ground.

The moves made to bring about the convergence of public and private interests through mixed enterprises seem to take sound advantage of the good features of both State and private concerns.

When the expansion of mining activities calls for the investment of public funds, the decision to invest can be taken only after careful comparison of the direct or indirect benefits expected to ensue with those that might derive from alternative investment possibilities. In such comparisons, it will be of vital importance to assign to costs and benefits the values that they really represent for the community.

As the interests of the community do not always coincide with the legitimate considerations of profit by which private enterprise is influenced, norms for the latter's participation in the country's economic process should be laid down by the government of each country, through mining legislation. Efforts should be made to ensure that mining activities make as great a contribution as possible to national development, especially through increased local dressing, smelting and refining of ores, which will also generate a larger source of foreign exchange earnings.

It must also be recalled that private investment is highly sensitive to the policies adopted with respect to taxation, foreign trade controls, exchange measures, labour legisation and property rights.

In defining the norms for the participation of private enterprise in the economy, rates of return on capital and amortization rates that will allow of a satisfactory margin of self-financing should be taken into account. Similarly, the adequate and timely adjustment of the figures concerned, in the event of inflation, should be guaranteed through flexible legal provisions.

A more constant flow of information, in greater depth, on the technico-economic characteristics of domestic and foreign production of each mineral, on transport costs, on trends in the corresponding international markets, etc., is an indispensable basis for the establishment of the norms in question.

It is assumed that foreign capital will continue to play an outstanding role in mining development in Latin America, either through direct investment or through long-term loans; its availability will largely depend upon the sound and lasting solution of the problems mentioned above.

4. *Regional integration*

In view of the Latin American countries' obvious intention to exercise more effective control over their basic wealth and reduce their external dependence, closer reciprocal co-operation is essential. In the case of mining, where the lack of such co-operation has been particularly marked, it could be put into effect in a number of ways. Mention may be made of the following:

(a) *Geological research in frontier areas.* Joint research by two or more interested countries in metallogenic frontier areas and provinces may prove quicker and more economic to carry out than if the studies were undertaken independently;

(b) *Technological research.* Research on procedures for dressing ores of the same or similar nature can also be advantageously conducted on behalf of all the countries concerned, if multilateral study groups are formed at the level of enterprises (State, private or mixed) and university institutes, so as to prevent duplication of investment and expenditure;

(c) *Exchange of experience and mutual assistance.* State agencies and mining enterprises of various kinds can fruitfully exchange experiences and assist one another in matters relating to law, administration, accident prevention techniques, development of production, vocational training, marketing, etc.;

(d) *Intra-regional trade in mining products.* From the structure of production and consumption of ore minerals and metals in Latin America it can be inferred that there are wide margins for the expansion of intra-regional trade in this field. There would also be good possibilities of stepping up trade in the equipment, tools and materials required by the mining industry;

(e) *Establishment of multinational mining enterprises.* In view of the complexity of the problems and requisites implicit in the efficient development of a vertically integrated mining enterprise up to the stage of international marketing of its products (the scale of capital requirements, the possession of the necessary technical know-how knowledge of markets, etc.), the establishment of mining enterprises in Latin America with multinational decision-making centres seems a highly promising expedient.

The efficient development of a deposit lying on both sides of a frontier is the simplest case that can be adduced to demonstrate the feasibility and desirability of an enterprise of this kind; but, strictly speaking, joint ownership of resource is not a *sine qua non* for conceiving multinational mining enterprises on various lines, which would be of great mutual benefit to the countries concerned;

(f) *Pooling of efforts to obtain better terms for the sale of mining products.* Some countries that export one and the same mining product (tin, copper, petroleum, iron) are showing a tendency to join forces in concerted action with a view to obtaining better terms of sale in world markets (in line with the aims of UNCTAD, for instance). This movement should be extended to other mining products as well.

RECENT DEVELOPMENTS IN THE LATIN AMERICAN INTEGRATION PROCESS*

From the signing of the Montevideo Treaty (1960), which instituted the Latin American Free Trade Association (LAFTA), and of the General Treaty on Central American Economic Integration (Managua, 1960), which established the Central American Common Market, a number of movements have stemmed, whose aim, pursued with some variations in tempo and approach, is to secure the economic integration of the region. These are undoubtedly the most important of the efforts made in Latin America to provide the instruments needed for concerted action to promote more efficient utilization of the resources and opportunities available to member countries. The picture of the integration process that they present was completed in 1968 by the establishment of the Caribbean Free Trade Association (CARIFTA).

In the last few years, LAFTA's liberalization programme has had some difficult situations to face, and recently, despite the work put into the negotiations by the Contracting Parties, the unanimity required for approval of the second phase of the Common Schedule was not achieved. As a result, it was decided that an over-all evaluation LAFTA's current problems should be prepared. To that end, the Standing Executive Committee resolved to meet as from mid-June 1969 to study possible solutions and propose measures to activate the progress of the organization.

Within LAFTA, a sizable group of countries at intermediate or relatively less advanced stages of economic development (the Andean Group) is seeking to establish, on the basis of its members' mutual affinities and at the subregional level, a more expeditious and thoroughgoing integration programme than the Association offers them. But here too problems arise, including some of the difficulties already encountered by the region as a whole.

In Central America's case, the three-year period 1966-68 was one of revision and adjustment. Initial steps were taken towards coordinating the economic policy of the several countries and forging links between the Central American Common Market and the outside world.

In the Caribbean area, the Free Trade Association was set up on 1 May 1968, and today its ten members are engaged in the task of broadening and consolidating it.

The present article is an attempt to assess the advances achieved in the integration process to date. With respect to LAFTA and the Andean Group, attention is drawn to some of the obstacles that have loomed up, and consideration is given to the major undertakings and proposals designed to facilitate the balanced and harmonious development of the system with due regard to the interests of the member countries.

1. The Latin American Free Trade Association

(a) *The Declaration of the Presidents of America*

As early as 1964 the conviction was entertained, both inside and outside LAFTA, that a number of difficulties inherent in the machinery of the Montevideo Treaty were obstructing the progress of the integration movement. Resolution 100 (IV) constituted formal recognition of the limitations of LAFTA and of the desirability of extending the provisions of the Treaty, at the earliest possible date, to include broader and more ambitious commitments.

The will to speed up the integration of the Latin American economies found expression at the eleventh session of ECLA (Mexico, May 1965), where it was argued that the time had come to push ahead with the policy decisions necessary to set a definitive course for the integration process and solve the technical problems raised. In this connexion it was recognized that suggestions contained in the documents presented by the ECLA secretariat[1] might provide a basis for the formulation of proposals which would make the adoption of such decisions viable.

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* This is a revised version of a document originally distributed in Spanish only with the symbol E/CN.12/833.

[1] In particular, "A contribution to economic integration policy in Latin America" (E/CN.12/728).

In resolution 251 (XI), the States members recommended to the ECLA secretariat that it should re-examine the formulas and alternative possibilities set forth in document E/CN.12/728, with due regard for any studies undertaken by member Governments, experts and agencies, and should frame specific proposals "for short-term and long-term action to extend and expedite the process of integration".

In December 1966, the Ministers of the States members of LAFTA, at their first meeting, ratified this determination to extend and expedite the integration process; adopted appropriate provisions for speeding up, at the national level, the implementation of the commitments assumed by the LAFTA countries; and agreed to establish a programmed liberalization régime to ensure that the reduction of duties and charges and the elimination of all restrictions—including those based on administrative and exchange measures—would proceed at a more rapid pace.

The concern thus evinced, together with the wish to devise effective means of stepping up the harmonious development of the region, created a propitious atmosphere for convening a meeting of American Chiefs of State. On the agenda for the Meeting a leading place was assigned to the definition of the measures needed to promote the Latin American integration process, viewed as an appropriate collective instrument for the desired acceleration of the region's development.

The Presidents made policy statements in relation to topics of fundamental importance for the economic development of Latin America as a whole, and drew up an action programme pivoting upon the regional economic integration process. They agreed to take action on the following points.[2]

> "(*a*) Beginning in 1970, to establish progressively the Latin American common market, which should be substantially in operation within a period of not more than fifteen years;
>
> "(*b*) The Latin American common market will be based on the improvement of the two existing integration systems; the Latin American Free Trade Association (LAFTA) and the Central American Common Market (CACM). The two systems will initiate simultaneously a process of convergence by stages of co-operation, closer ties, and integration, taking into account the interests of the Latin American countries not yet associated with these systems, in order to provide for their access to one of them;
>
> "(*c*) To encourage the incorporation of other countries of the Latin American region into the existing integration systems".

Accordingly, the Presidents recommended to the Council of Ministers of LAFTA that, at its second meeting (Asunción, August 1967), it should adopt the measures necessary to implement certain fundamental decisions. The Standing Executive Committee formulated the bases for these measures, although comments and qualifications were still left pending. At the meeting in question, the Ministers for Foreign Affairs recommended to the Standing Executive Committee[3] that it should continue the study and examination of norms for the key items on the Action Programme drawn up by the Presidents, in so far as they concerned the economic integration process within the sphere of LAFTA.

Since then, headway has been made in the progressive co-ordination of measures and economic instruments designed to unify legislation in the LAFTA countries to the extent required for the integration process; in the study of mechanisms for furthering the convergence of LAFTA and the Central American Common Market; and in respect of preferential treatment for the economically relatively less developed countries. Physical integration programmes have also been launched, especially for transport and electric energy. The River Plate countries, for their part, are working on a subregional programme.

In 1968 the payments system in operation within LAFTA was improved, steps were taken to link it with the system in force in the Central American Common Market, and the idea of pooling part of the international reserves of the Latin American countries to form a common fund, either at the regional level or by subregional groupings, was once again brought to the fore. The Latin American stock exchanges set up a co-ordinating committee for the interchange of information and advisory assistance.

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[2] See Pan American Union, *Meeting of American Chiefs of State, Part I. Declaration of the Presidents of America* (OEA/Ser.C/IX.1), Washington, D.C., 1967, p. 63.

[3] See LAFTA resolution 191(CM-II/VI-E).

The various meetings of the Advisory Commission on Monetary Affairs, of the Council for Financial and Monetary Policy, and of the LAFTA expert groups, have afforded opportunities of amending the general treaty and regulating the multilateral clearing system, as well as of adopting norms for unifying bank technique procedures.

In conformity with the postulates of the Declaration of the Presidents of America[4] regarding the process of convergence of LAFTA and the Central American Common Market, and the recommendation formulated at the third meeting of Latin American Central Banks, more intensive effort has been expended on studies and meetings with a view to linking up the payments systems of the two integration movements. Nevertheless, fundamental aspects of the problem, such as the preparation of bases for the co-ordination of exchange and monetary policies, have not yet been tackled.

(b) *The Common Schedule*

During the past two years, LAFTA has been almost constantly concerned with the implementation of those provisions of the Montevideo Treaty which relate to the incorporation into the Common Schedule of a list of products constituting not less than 50 per cent of intra-Area trade. It had already been settled at the second special session (1964) that the Contracting Parties, before beginning the second round of negotiations for the establishment of the Common Schedule, should decide upon the regulations which were to govern trade in agricultural commodities once the interim period stipulated in the Treaty had expired,[5] and the Standing Executive Committee had been requested to make an immediate start of the relevant studies. The product of these was a draft set of norms for the marketing of agricultural commodities as from 1973. But although the draft underwent several revisions, it proved impossible, in the final issue, for unanimous agreement to be reached on the norms proposed.

Thus, the States members of the Association are in arrears as regards compliance with the terms of article 7 of the Treaty, respecting the establishment of the Common Schedule, in conformity with the stipulations of the Protocol on Norms and Procedures for Negotiations; and they have not yet decided how to remedy this state of affairs. Accordingly, the conclusion has been reached that the Standing Executive Committee should study measures whereby the difficulties encountered at this stage of the formation of the Common Schedule can be overcome, subsequent negotiations facilitated and the Contracting Parties placed in a position to meet, after the interim period, the commitments assumed under the Montevideo Treaty in this field.[6]

(c) *The National Schedules*

Application of the mechanisms established in the Montevideo Treaty for the drawing up of the National Schedules has continued. Whereas in the first two rounds of negotiations tariff concessions were agreed upon for a large number of products, as from the third round a considerable falling-off is observable although an increase took place in the seventh round and a further improvement in the eighth.

Of the total concessions accorded, Argentina, Brazil, Ecuador and Mexico account for the highest proportion. The lists of advantages granted to the economically relatively less developed countries and not extended to the other Contracting Parties have also been successively amplified, in line with the provisions of Chapter VIII of the Treaty. The major share falls to Paraguay, with Ecuador coming second, while in the case of Bolivia and Uruguay the number of concessions is relatively smaller, since these countries have only recently begun to benefit by the preferential system in question.

(d) *Trends in intra-Area trade*

Since the entry into force of the concessions granted through the machinery established in the Montevideo Treaty, intra-Area trade has expanded from a total of 659 million dollars in 1961 to 1,414 million in 1967, i.e., by 114 per cent in relative terms.

The over-all growth rate of intra-Area trade rose from one year to the next up to 1964, and thereafter gradually declined, until by 1967 the figures were lower than those for 1966. The reasons for this include the fluctuations in the trade of Argentina and Brazil, which in the aggregate accounts for almost 60 per cent of total intra-Area trade. Another contributory factor has been the application of escape clauses.

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[4] Pan American Union, op. cit., p. 58.

[5] See LAFTA resolution 91 (II-E)

[6] See LAFTA press releases, Nos. 10 and 11 (December 1968).

As regards the commodities traded, the system has generated steadily increasing flows of industrial products, many of them highly processed.

(e) *The existing situation*

The decision adopted by the members of LAFTA to convene the Standing Executive Committee in order to evaluate the progress of the integration movement and decide upon future action to give it greater impetus was directly prompted by the difficulties encountered in the negotiations concerning the second phase of the Common Schedule. However, the stumbling-blocks in the way of more rapid progress made it advisable to consider all the aspects of the Association's activities, as the Contracting Parties decided when they requested the Committee to undertake the task.

Since the entry into force of the Montevideo Treaty, and especially in the last few years, the formal content of the regional economic integration process has been considerably expanded, but in respect of practical achievements no correlative development has taken place. Neither the objectives scheduled for the interim period established under the said Treaty, nor the decisions incorporated in the Action Programme of the Presidents of America, have been fully implemented.

Besides the deadlock reached in the second round of Common Schedule negotiations, there have been others linked to the selective negotiation machinery in force, for although the concessions granted during the last round of annual negotiations increased in number, it is clear that they were mainly confined to a few countries. This casts some doubt on whether every country will manage to meet the minimum annual commitment to lift duties and charges on 8 per cent of the weighted average of its imports, as provided in the Treaty. As regards the Common Schedule negotiations still pending, it appears likely that the existing dissensions can be smoothed out, since the objections formulated by the countries that denied their support to the draft regulations for trade in agricultural commodities and to the list of products—which gained the approval of a substantial majority—do not seem to be insurmountable obstacles within the legal structure of the Association. This view is borne out by the very fact that the objections essentially concern trade in certain agricultural commodities and the régime applicable to the economically relatively less developed countries, since these are situations for which established norms exist, or criteria which in broad outline have been unanimously accepted.

Setting aside the possibilities of an adjustment in the second round of Common Schedule negotiations, in connexion with the future negotiations for the Schedule in question problems arise which, in the last analysis, constitute almost all the difficulties hindering the development of LAFTA.

(f) *Solutions proposed*

Under the Montevideo Treaty, the reduction and elimination of duties and charges through national schedules and auxiliary mechanisms are intermediate stages in the process of bringing the Free Trade Area into full operation. The foundations on which the Area is built up are constituted by the groups of products incorporated into the Common Schedule at three-yearly intervals. Moreover, it is this Schedule that provides the Association with the legal grounds for the non-applicability of the most-favoured-nation clause to which almost all the LAFTA countries are subject through their membership of GATT and through bilateral agreements with third countries.

Two ways of overcoming the difficulties that have arisen in the Common Schedule negotiations have recently been suggested: purely and simply to eliminate the Common Schedule commitment by amending the Montevideo Treaty; or to maintain the existing trade liberalization mechanisms, as established in the Treaty, but to extend the time limits fixed for implementation of the corresponding programme.

The first proposal would cloud the prospects of effectively bringing the Free Trade Area into full operation, and seems to limit the commitments of the LAFTA countries to the establishment of a system of trade preferences within the Area. Such a situation, for which no provision is made among the exceptions to the application of the most-favoured-nation clause established by GATT, might give rise to problems not only under the General Treaty itself—despite attempts to invoke favourable interpretations of Part IV—but also in respect of third countries with which the members of the Association have signed agreements containing the most-favoured-nation clause.

The second suggestion would defer the legal deadlines for implementation of the liberalization programme, without affecting the preferential character and non-extensibility to third parties of the tariff concessions negotiated. It would obviate the need to modify the mechanisms set up under the Treaty, which would be a task of no little complexity in view of the foreseeable differences of opinion between the Contracting Parties as to the scope and breadth of the amendments required.

At the same time, the mere extension of the time limits fixed for implementation of the liberalization programme, if unaccompanied by decisions which would enable the drawbacks of the present negotiation system to be overcome, would do no more than put off the task of solving the basic problem. Consequently, such a measure should be supplemented by some sort of machinery for programmed liberalization based on the attainment of a progressive series of targets. This approach necessarily suggests a programme of action at a more over-all level, offering real possibilities of removing the existing obstacles, one after another, within the new time-limits.

(g) *Obstacles to the progress of LAFTA*

As LAFTA moves ahead, the existing problems emerge more clearly and in their true dimensions. Although they have been fully recognized and considered by the Association, reference to some of them will not be untimely here as a reminder of the need for practical decisions leading to their solution. Mention may be made of the following:

(i) The differences in levels of development and economic potential, which mean that the countries' relative chances of benefiting by the process (especially by the broadening of the market) are very unequal, so long as no well-defined policy is adopted to prevent acute disequilibria;

(ii) The marked contrasts in the internal development of each of the LAFTA countries, which make it difficult to deal with the problems raised by relative under-development in national terms, and give rise to conflicting priorities as between the corrective measures of national and regional scope that should be adopted;

(iii) The deficiencies of transport and communications, which hinder the expansion or even preclude the development of intra-Area economic relations;

(iv) The differences in the economic, financial, labour and social measures adopted by the various countries, which, in combination with the disequilibria indicated above, are reflected in notably heterogeneous structures of production and costs, and generate strong opposition to the furtherance of the trade liberalization programme;

(v) The serious shortage or even total absence of information on the markets of the Area, with their customary and potential demand; on the norms, procedures and practices currently applied—in trade and finance in particular—; and on other essentials for the effective conduct of business;

(vi) The lack of marketing networks and of practical information and promotion machinery at the service of intra-Area trade;

(vii) The want of competitive spirit among entrepreneurs in the Area, and the consequent resistance to any change in the *status quo;*

(viii) The prevailing uncertainty as to the predictable effects of trade liberalization under a system which does not afford equitable competitive conditions, in view of the heterogeneity of national policies and their influence on the costs of the factors of production, especially as there are no efficacious mechanisms for coping with the distortions apprehended, and no resources to finance possible switch-overs of productive activities and manpower during the integration process;

(ix) The balance-of-payments problems which have been affecting several member countries. Attempts to solve them have implied the repeated adoption of measures that have a restrictive effect on trade, and their unfavourable repercussions threaten to continue in the near future;

(x) The meagreness of the resources available for financing the Area's trade and the widespread lack of linkage with commercial mechanisms to promote and expand trade;

(xi) The existence of different rates of inflation, and the marked disparities in the real domestic purchasing power of the national currencies, as well as the variations in the treatment accorded to direct foreign investment.

The gradual removal of these and other obstacles would broaden the possibilities for effective action, to which end the following measures have been suggested:

In the preparation of the negotiations, strict observance of the deadlines established in the Protocol on Norms and Procedures for Negotiations and in resolution 47 (II). The study of the concessions in operation would also be of assistance in the orientation and programming of the negotiations, in so far as it shed light on the efficacy of the said concessions, and on any special points arising in respect of countries, commodities and sectors;

Identification of the sectors which offer the most favourable conditions for vitalizing the liberalization process, in order to try out a partial system of programmed tariff concessions with a view to its subsequent extension to other sectors, residual duties and charges being maintained for a given period as means of compensating the existing disparities among the LAFTA countries;

Stepping-up of the studies aimed at obtaining precise information on market prospects for exports of manufactures and semi-manufactures; institution of a LAFTA system for the financing of intra-Area trade; formulation of bases for regional machinery to facilitate the marketing of agricultural commodities; promotion of commercial enterprises within the Area; and coordination of entrepreneurial activities with a view to the establishment of a system of exchanging information on markets and trade opportunities and entering into association for the purposes of developing multinational productive and commercial activities.

2. The integration of the countries signatories of the Declaration of Bogatá

As the integration movement has progressed in Latin America, one of its most outstanding aspects has been the question of reconciling the over-all objectives pursued with the aims that are of concern to each of the individual participating countries. Thus a prominent place has been taken by the difficulties attendant upon an integration movement among economies with dissimilar structures, different growth rates and marked social and political disparities. These divergences raise the problem of the equitable participation of the various countries in the benefits of integration and necessitate the narrowing of economic gaps in order to safeguard the satisfactory progress of the movement and the full attainment of its objectives.

In the search for new solutions, the subregional movement, built up around a genuine fusion of national markets and an agreed development strategy, should constitute, in existing circumstances, not only a method of overcoming the above-mentioned difficulties but, what is more, a means of imbuing the integration process with the indispensable dynamism and efficacy. Subregional strategy brings up new queries and problems as regards the attainment both of its own targets and of common market objectives. The fact that the participating economies are more similar and convergent does not suffice in itself to weaken the opposition to more intensive and expeditious integration formulas. On the contrary, resistance is apt to stiffen, and to extend to other questions not hitherto discussed, as, for example, the significance of the new mechanisms for economic decisions at the national level and for the restructuration of market forces within each country.

The viability of subregional movements must also be considered from the angle of their real economic possibilities, not merely as a means of expanding the national economies, but also as a significant contributory factor in the more rational and efficient distribution of productive activities. These objectives should not be neglected in subregional agreements if these are to pave the way for the development of investments calculated both to impart stability and dynamism to the internal growth of the subregion and to establish the right conditions for more balanced participation of the member countries in the Latin American integration process.

Due consideration of the foregoing factors will enable the scope and prospects of subregional agreements to be clearly defined and compatibility with the Latin American common market to be placed on a real, not merely a formal footing. For the moment, convergence between the subregion's own objectives and those of Latin America viewed in the context of economic integration is a somewhat academic question, since LAFTA, except for a few general policy statements, has not yet formulated a precise definition of its objectives in terms of a Latin American development strategy. Hence it seems likely that, to begin with, subregional agreements will adopt a development model geared to the situation of the participating economies rather than to the objectives of the region as a whole, which would mean that during an initial stage the disequilibrium problem would be a matter for tariff negotiations.

In specific fields, especially industry, compatibility displays more definite and distinguishable characteristics. Thus, it is possible to envisage subregional industrialization models —taking due account of the current status of industry, the size of the market and the availability of resources—which would be complementary to the model for the Latin American region as a whole.

(a) *Institutional evolution of subregional markets*

The Declaration of Bogotá[7] laid the foundations for reciprocal co-operation based on the co-ordination of policies in specific sectors and on the establishment of a temporary system of preferences to counteract the deficiencies of the machinery for complementarity agreements in operation in LAFTA. The Declaration of the Presidents of America formally approved the system of subregional agreements in keeping with the principles set forth in the basic document signed at Bogotá. Subsequently, resolutions 202 (CM-II/VI-E) of the LAFTA Council of Ministers and 222 (VII) of the Conference ratified the decisions of the Presidents and established the norms by which the system was to be governed.

In the field of integration, the Declaration of Bogotá set up two main objectives: to expedite the integration process and to tighten up economic co-operation among the signatory countries within the framework of LAFTA. As a means of attaining the first of these objectives, it put forward a proposal for the conversion of LAFTA into a customs union, through the adoption of rules and principles designed to guarantee the formation of the market in question, and others conducive to the expansion of trade and the industrialization of countries at intermediate and relatively less advanced stages of economic development. In pursuit of the second objective it was decided that a programme should be launched to co-ordinate the policies of the countries signatories of the Declaration in the fields of trade, industry, finance, services and technical co-operation. It was further proposed that the industrial sector should be developed under an import substitution programme assigning special importance to those branches of industry which would be of use not only in meeting the market requirements of the signatory countries but also in establishing or consolidating their industrial structure.

The decision of the Presidents enabled the programme formulated in the Declaration of Bogotá to be set in motion, inasmuch as it removed the institutional difficulty which had been preventing the commercial and industrial co-operation envisaged in the programme from materializing, although a start had been made on the negotiation of industrial complementarity agreements (for example, through the meetings held in connexion with the petrochemical industry).

The Joint Commission was set up at Viña del Mar in June 1967, and met in the following July and August at Quito and Caracas. On this last occasion, the bases for the subregional agreement between the States signatories of the Declaration of Bogotá were adopted, and were subsequently approved by the LAFTA Council of Ministers when it met in August of the same year.[8]

At the fourth session of the joint Commission (Lima, November 1967), the bases having been approved and the norms to which subregional agreements should conform having been established by the LAFTA Council of Ministers, it was agreed that a group of experts from the countries forming the Andean Group should be requested to study the various problems arising in connexion with the subregional system and to prepare a draft agreement in line with the above-mentioned bases and norms. The experts met at Bogotá in January-March and June-July 1968. At its fifth session (Bogotá, February 1968), the Joint Commission took note of a progress report on the work of the expert group, and representatives of six countries signatories of the Declaration of Bogotá signed the agreement instituting the Andean Development Corporation. At the end of July and the beginning of August the first part of the sixth session of the Joint Commission was held at Cartagena (Colombia), to study the draft agreement prepared by the experts. The second part took place in May 1969, also at Cartagena, and on that occasion the Andean Subregional Integration Agreement was approved.

In the course of the past few years the Commission has also dealt with other aspects of subregional co-operation. Outstanding examples are the steps taken in the field of industrial complementarity, particularly with respect to the petrochemical, motor-vehicle and metal-transforming industries. An agreement has already been signed in relation to the first of these, and various studies on the others are being carried out with a view to the conclusion of further agreements. A procedure was also approved for stepping up the negotiations of the signatories of the Declaration within LAFTA, and it was agreed that a meeting of the heads of planning offices in the countries concerned should be convened to examine the problems of linkage between national development plans and the subregional integration process and to draw up a work programme for the systematic elucidation of these problems and the proposal of relevant solutions.

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[7] Signed in August 1966 by the Presidents of Chile, Colombia and Venezuela and by the personal delegates of the Presidents of Ecuador and Peru. The Government of Bolivia acceded to the Declaration in August 1967.

[8] LAFTA resolution 203 (CM/11/VI-E).

(b) *The Andean Subregional Integration Agreement*

(i) *Basic objectives.* Subregional integration is interpreted as a policy designed to promote the balanced and harmonious development of the member countries, and as a means of facilitating their participation in the integration process envisaged in the Montevideo Treaty and establishing conditions favourable to the conversion of LAFTA into a common market. In order to attain these objectives and ensure the equitable distribution of the advantages deriving from integration, so as to reduce the existing disparities between the parties to the Subregional Integration Agreement,[9] these countries are to adopt a joint development strategy with the following main objectives: the creation of employment opportunities in the subregion; the strengthening of the position of the individual countries and the subregion as a whole from the standpoint of external economic relations, the solution of infrastructure problems; and the more efficient application of scientific and technological progress, together with the furtherance of research in those fields. To serve all these ends, the States members agree to harmonize their economic and social policies concurrently with the formation of the subregional market; to co-ordinate national development plans; to undertake joint programming for industry, agriculture and infrastructure; to channel resources for the financing of subregional investment; to harmonize their exchange, monetary, financial and fiscal policies; to establish preferential treatment for Bolivia and Ecuador; and to set up a common market.

(ii) *General provisions of the Agreement.* The goal of the subregional common market will be the complete elimination of the duties, charges and restrictions affecting trade between the parties to the Agreement. Its formation will be based on the application of a linear and automatic liberalization programme for imports of goods produced in the subregion, starting from levels of duties and charges which in no case are to exceed 100 per cent of the c.i.f. value of the articles imported; and on the adoption, by the same procedure, of a common external tariff, which during the first five years that the Agreement is in force will mainly take the form of a standard minimum preference in favour of the products of the subregion. Direct restrictions are to be abolished in the first year.

The subregional market is to be brought into full operation by December 1980, save in respect of the products temporarily excepted from the liberalization programme by each country, and those covered by sectoral industrial development programmes, which will be subject to a special and more rapid régime in relation to free trade and the common external tariff.

The liberalization provisions also stipulate that within the first two years of application of the Agreement completely free access to the subregional market shall be accorded to products on the LAFTA Common Schedule and to those not produced in any country of the subregion and not reserved for production in particular countries or subject to programming.

The primary aim of the other mechanisms set up under the Agreement is to solve the structural growth problems of the participating countries, by means of systematic action concerted through the policy-making organ of the Agreement on the basis of the proposals and suggestions submitted to it by the technical Board. This action will be taken mainly through programming within the framework of the common market.

Industrial development is assigned a leading place in the Agreement. The contracting parties pledge themselves to step up and diversify their industrialization processes through the joint formulation and implementation of sectoral industrial development programmes aimed at achieving the following objectives: promoting the expansion and specialization of manufacturing production; making the best possible use of the resources available in the subregion; increasing productivity; taking advantage of economies of scale; and equitably distributing the benefits of integration among the parties to the Agreement.

The programmes to be proposed by the Board for the Commission's approval, as from 1971 and at any time during the application of the Agreement, will be basically designed to encourage new investment, and will take into account, alongside the above-mentioned objectives, the need to ensure that the allocation of factories shall be consistent with the principle of harmonious development of the subregion and with the intention that the factories envisaged in the programmes shall effectively avail themselves of the opportunities offered by the subregional market.

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[9] The Integration Agreement, which was signed at Bogotá on 26 May 1969 by the Governments of Bolivia, Chile, Colombia, Ecuador and Peru, was published by the Instituto Colombiano de Comercio Exterior, in *Comercio Exterior*, vol. I, No. 1 (July 1969), p. 17 (in Spanish only).

Provision is made for measures to rationalize existing industries whose production is not subject to programming, with due regard to their installed capacity, technical and financial assistance requirements, manpower training needs, and the possibilities for specialization and co-operation as between enterprises of a similar type.

The programming of industry in the subregion is also to be based on the adoption of common provisions and the harmonization of norms with respect to the treatment accorded to foreign capital—including such questions as brands, patents, licences and royalties—legislation on industrial development, and instruments and mechanisms for the regulation of foreign trade with a view to the adoption of a common trade policy vis-à-vis third countries. The system of multinational enterprises, for which a common régime is to come into force by mid-1971, should constitute the basic framework for the operation of new plants and the rationalization of those already in existence. Such enterprises shall also aim at making more effective use of the investment opportunities provided by the subregional market and of the productive resources of the subregion, as well as at strengthening its bargaining power in negotiations for obtaining foreign capital and the transfer of technology.

In the industrial sector the linkage between the Subregional Agreement and the Andean Development Corporation is even closer than elsewhere. It will guarantee the Corporation's technical and financial contribution to the joint programming and placing of investment and to the financing of specific projects undertaken in compliance with industrial and plant rationalization agreements.

In the agricultural sector, the objectives pursued by the parties to the Agreement are the formulation of a common policy and the preparation of an indicative plan. Accordingly, they are to harmonize their national policies and co-ordinate their agricultural development plans, with a view to raising the level of living of the rural population, increasing production and productivity, and promoting specialization, subregional import substitution and the diversification and expansion of exports. To attain these objectives, the subregion will adopt programmes and agreements designed to encourage agricultural development, to safeguard the supply of agricultural commodities, to promote exports, to forge links between State marketing agencies and the official bodies responsible for the planning and implementation of agricultural policy, and to further joint action in the fields of technical and financial assistance, applied research and plant and animal health.

To solve the infrastructural problems which are affecting the subregional integration process, especially those hampering the implementation of the sectoral programmes, the countries of the subregion will take concerted action in the form of the adoption of specific programmes and projects, mainly in the fields of energy, transport and communications. These programmes will be administered and executed by multinational agencies or enterprises.

The countries of the subregion undertake to co-ordinate their national financial and payments policies, systematically and progressively, with a view to channelling public and private savings into the financing of subregional investment and trade; facilitating the movement of capital; and seeking solutions for exchange and payments problems in the subregion and with LAFTA, as well as for the problems deriving from double taxation.

(iii) *Special treatment for Bolivia and Ecuador.* The Agreement establishes special treatment for Bolivia and Ecuador, with the purpose of enabling them to attain a more rapid rate of economic growth, through their effective and immediate participation in the benefits deriving from industrial development in the area and from trade liberalization. In the first place, provision is made for giving Bolivia and Ecuador differential treatment and providing them with sufficient incentives to compensate for their structural deficiencies; and, secondly, priority is assigned to them in the allocation of production and the resulting location of industries in their territories. Similar advantages and incentives are to be included in the programmes relating to agriculture, financial and technical co-operation and infrastructure; in the last-named field, special attention will be devoted to the problems originating in the characteristics and position of the territories of Bolivia and Ecuador.

In order to ensure the effective and immediate participation of the products of Bolivia and Ecuador in the subregional market, the special treatment includes the speeding-up of liberalization measures so as to afford goods produced in those countries free access to the territories of the other signatories seven years before this treatment will be in full operation among the other parties to the Agreement. Furthermore, as from 1971 a list of selected products of Bolivia and Ecuador is to be completely exempt from duties and charges in the countries of the subregion. Provision is also made for the establishment of exclusive margins of preference in favour of products of special interest to Bolivia and Ecuador. Liberalization of trade in the products included on the Common Schedule will not affect the advantages not extended to other States which the other members of the subregion have granted to Bolivia and Ecuador in the framework of LAFTA.

In their turn, Bolivia and Ecuador are to eliminate duties and charges on their imports from the subregion and to adopt its common external tariff, in conformity with a programme under which the process of implementing these commitments may begin in the seventh year from the entry into force of the Agreement, and be completed in 1985. Products included in the lists of exceptions drawn up by Bolivia and Ecuador will be exempted from duties and charges only by 1990; moreover, the permitted number of products will be larger than in the case of Chile, Colombia and Peru. Different and more flexible treatment is also established with regard to the assumption of the commitments stemming from the harmonization of legislation on industrial development and the application of the common external tariff.

(iv) *Institutions of the Agreement.* The administration and implementation of the programme will be the responsibility of the Commission constituted by representatives of the Governments, which is to formulate over-all subregional integration policy, and of the Board, composed of three members, which is to supervise the application and implementation of commitments and to submit proposals to the Commission designed to speed up or facilitate compliance. The decisions of the Commission, with some exceptions already agreed upon in certain specific fields and in relation to the special treatment for Bolivia and Ecuador, will be adopted by the affirmative vote of two thirds of the member countries.

Through a Consultative Committee and an Economic and Social Advisory Committee closer links will be established between the organs of the Agreement, the member Governments and the entrepreneurial and labour sectors in the countries concerned. Any differences of opinion arising with regard to the interpretation or application of the Agreement will be settled by the Commission, or by application of the procedures laid down by LAFTA.

In July 1969 the Standing Executive Committee of LAFTA declared the Subregional Integration Agreement compatible with the principles and objectives of the Montevideo Treaty and with resolution 203 (CM-II/VI-E). The Agreement will enter into force when three States of the subregion have transmitted their instruments of ratification to the Executive Secretary of LAFTA, and will remain in force for such time as the commitments undertaken within the general framework of the Montevideo Treaty are not extended to the point of superseding those established in the Agreement.

(c) *Andean Development Corporation*

The Andean Development Corporation must become the motive force of Andean integration, since the industrial development programmes which are the basic objectives of such integration can hardly be carried out without considerable financial assistance, coupled with systematic action to promote new investment. This is also true of the measures designed to rationalize and supplement existing production. It is not out of place to point out the inconsistency between a discretional system of customs safeguards and the goals of an integration process aimed at accelerating economic development through changes in the forms of production, or to stress that adjustments in the face of competition and of participation in the newly created demand must be achieved primarily with financial and technical assistance.

Indubitably, the contributions from other sources of financing and technical co-operation inside and outside the region will continue to be particularly useful in securing those aims. Such aid will be still more effective, however, if it is channelled through an instrument of the subregional system itself. The direct links between the Andean Development Corporation and the organs of the system—especially the Board—and their common objectives will help to prevent dispersion of efforts and to concentrate such financing in sectors which are important for subregional development. These links will facilitate the execution of programmes undertaken by the organs of the Agreement, since the discretional powers of the Andean Development Corporation to prepare and promote projects of subregional interest, without the compulsory and complex negotiations that must be conducted at the level of the Board and the Commission, will expedite and make more flexible the search for solutions to the problems that may arise in the implementation of the subregional Agreement.

More specifically, attention is drawn to the joint or complementary role which may be played by the Corporation and the Pre-investment Studies Fund of the Inter-American Development Bank in preparing projects of interest to the subregion. Likewise, the possibility of establishing contact between the Andean Development Corporation and national industrial development agencies will enable the latter to expand their investments and, through the Corporation, to co-ordinate their action on a multinational basis within the scope of the subregion's objectives.

The Corporation was set up by public law primarily to promote integration through the optimum utilization of the subregion's possibilities and resources. To that end it will encourage or participate in the establishment of production or service enterprises and will provide financial or technical assistance in expanding, modernizing or converting those already in existence. These activities will be guided by the principles of rational specialization and an equitable distribution of investment in the subregion, taking into account the need for effective action in favour of the economically relatively less developed countries.

The agreement establishing the Corporation was signed at Bogotá in February 1968 by the six Governments signatories of the Declaration of Bogotá; it has been ratified by the Congresses of Colombia and Peru and only one more ratification is necessary before it can enter into force. The headquarters of the Corporation are at Caracas, but agencies, offices or representatives can be established in the other participating countries, or outside them wherever this would facilitate its operations.

3. THE CENTRAL AMERICAN COMMON MARKET

(a) *General observations on the Central American Common Market*

From the outset, the Central American countries viewed integration as a process that would move in stages towards the formation of a single regional structure and would, over a period of time, complement and support the external sector by opening up markets, promoting a wide-ranging policy of import substitution and restructuring economic relations with the rest of the world.

Eighteen years have elapsed since the Central American Governments first expressed their interest in starting an integration programme, a period which can be divided into four separate stages. Between 1951 and 1958 the basic research was undertaken and the fields and activities in which the process of economic integration might begin were identified. From 1958 to 1962 the agreements establishing the Central American Common Market (CACM) were signed. Over the next four years improvements were made in the free-trade area and the common external tariff, and the regional institutions set up under the General Treaty on Central American Economic Integration were strengthened. During the same period, as a result of the opening up of markets, adjustments were made in the new regulations governing competition among national sectors of production and certain economic policy decisions.

In 1966 a period of review, adjustment and control began. Measures were taken to co-ordinate the major elements of national economic policy and to establish relations between the Central American and other countries. Over the past three years there has been more and more of a regional approach to decisions on investment, production and distribution, although at the same time a series of problems has arisen, mainly relating to fiscal matters, balance-of-payments problems and distortions in intra-area trade, and attributable both to the growing dynamism of the Common Market and to the influence of external-sector trends upon it. Concern has also been aroused by the fact that an increasing number of the Central American enterprises that grew up as a result of economic integration have been taken over by foreign companies in recent years. The way in which these problems have been tackled shows that the Central American Common Market, far from being affected by them, continues to be a major enterprise which is not only on the move —intra-area trade now accounts for one fourth of all its foreign trade—but which has regional organs capable of taking important steps at the right time—as is evident from the San José Protocol regarding emergency measures to protect the balance of payments—and which constitutes an adequate framework for joint action in relations with third countries.

(b) *Development of the Central American Common Market*

The Central American Common Market was virtually complete in 1966, as regards the establishment of the Central American free-trade area and the adoption of the Central American

Customs Tariff; its members are Costa Rica, El Salvador, Guatemala, Honduras and Nicaragua.

Over the past three years, progress has been made in liberalizing trade in goods produced in the area and with respect to the common tariff for imports of goods from third countries.

As a result, restrictions are still applied to trade in only a very few goods produced in the area and a mere handful of tariff headings remain liable to national customs duties or charges, the latter owing to differences in levels of development, problems of competition, the protection of certain productive activities and the fiscal needs of the various countries.

(i) *Free trade and regional trade.* Only 96 of the 1,274 tariff sub-items in the Standard Central American Customs Nomenclature (NAUCA) were subject to restrictions in 1966. Between 1966 and 1968, trade in 51 of these was freed when three regional agreements entered into force; this meant that the Central American countries had freed trade in goods produced in the area for a total of 1,229 sub-items, or 96 per cent of the total. The third Protocol to the General Treaty liberalized trade in paper and glass containers between Nicaragua and the other countries members of the Common Market; the Special Agreement on the Equalization of Import Duties and Charges on Rayon Fabrics and other Artificial or Synthetic Fibres and the second Managua Protocol helped to free certain groups of textile goods that were dependent upon the equalization of tariffs on their raw materials, while the Special Protocol on Basic Grains laid down guidelines for a joint policy with respect to imports of such commodities. It should be noted that, of the 45 sub-items that are still restricted, 19 are restricted multilaterally and the remainder are restricted in trade between pairs of countries, while the goods are mainly traditional exports (coffee, cotton, sugar), goods produced under state control (cane spirit) and goods which present special problems (wheat, wheat flour, tobacco and petroleum products).

Intra-area trade began to grow rapidly after the entry into force of the General Treaty and the protocol on tariff equalization in 1961; it gained momentum in 1963 when Costa Rica acceded to the basic regional agreements, and accelerated in 1966 at the end of the five-year transition period leading to free trade. Intra-area trade, which totalled 37 million dollars in 1951, amounted to 173 and 214 million dollars in 1966 and 1967 respectively, and the 1968 figure was estimated at some 255 million dollars. Cumulative annual growth rates were as follows: 14.2 per cent over the period 1950-60, 30 per cent during 1960-63 and 31 per cent during 1960-67. Manufactures remain the main component of intra-area trade, and the disparities between the different countries' shares of such trade have been reduced. Trade between the countries signatories of the General Treaty accounts for approximately 25 per cent of their total imports as a group in 1968 compared with only 6 per cent in 1960.

The growth of intra-area trade and the need to take better advantage of this process led the Central American Governments to improve certain of the institutional aspects which complement the Central American Common Market. For example, in 1967 and 1968 regulations came into force for the application of the Uniform Central American Customs Code, established in February 1965, as well as regulations establishing procedures for settling disputes on matters of trade and the application of agreements for the area. In June 1968, the Governments signed the Central American Agreement on the Protection of Industrial Property; this is designed to meet the need for regional standards for policy and procedures governing the use of trade marks, brand names, and publicity slogans and signs, which, because of their great diversity, had created certain obstacles to free trade within the area. The regional institutions also agreed upon ways and means of regulating the internal market and external supply of dairy products as from 1969, based on the provisions of the San José protocol on tariff equalization. A regulation to standardize the customs procedures applicable to goods coming under the free-trade régime is awaiting approval and will mark a further step towards the facilitating of trade, the reduction of land transport costs and the speeding up of frontier clearance formalities for freight-carrying vehicles. In the immediate future, greater attention will have to be paid to regulatory machinery for protection against unfair competition and monopoly practices; some thought must also be given to the effects of the attitude adopted by foreign investors upon taking over Central American enterprises that have grown up in the shelter of the integration and import substitution policies.

(ii) *Tariff equalization and customs policy.* Over the past three years, the regional authorities of the Central American Common Market have focused their attention on the renegotiation of existing standard customs duties and charges rather than on the completion of the Standard

Central American Customs Tariff. Consequently, while standard tariffs were renegotiated for over forty headings for products, tariffs were only equalized for two new headings. At the end of 1967, this left thirty-one tariff headings still awaiting equalization. The main obstacle to standardizing the level of tariffs stems from the fact that the sub-items outstanding account for some 15 per cent of both total imports and the customs revenue of Central America. They relate mainly to passenger cars, petroleum products, broadcasting equipment, electrical appliances, wheat and wheat flour. In the majority of cases, in order to equalize the tariffs for these items, a number of special fiscal agreements would have to be signed *en bloc* and a co-ordinated regional policy would have to be adopted with respect to assembly activities and agricultural development.

As more and more standard tariffs for imports from third countries have been renegotiated, it has become apparent that the renegotiating machinery currently in use is slow and cumbersome, and that a long time elapses between the signature of an agreement and its entry into force. For this reason, the Central American institutions and Governments carried out a number of studies in 1966, and in 1967 drafted guidelines for a new agreement to make the process of renegotiation and also the regional coverage of standard customs duties and charges more flexible, on the basis of a system of margins, approved by the respective legislative assemblies, within which the regional authorities would be able to establish tariff levels by multilateral agreement. In addition, efforts are being made to complete tariff legislation, to demarcate the respective jurisdictions of port and customs authorities at points of entry for foreign goods, and to formulate an agreement to combat smuggling and fiscal fraud.

(iii) *Industrial and agricultural development.* The increase apparent each year in the volume of intra-area trade is mainly accounted for by trade in manufactures, owing to the establishment of new plants, the expansion of those in existence and the use of idle capacity, and, to a lesser degree, to the development of the basic transforming industries.

Industrial investment over the past three years has been concentrated in glass manufactures (Guatemala and El Salvador), petroleum refining (Costa Rica and Honduras), tires (Costa Rica), caustic soda and toxaphene (Nicaragua), textiles (Honduras) and pharmaceutical products and medicines in various countries. The Permanent Secretariat of the General Treaty intends to give priority during 1969 to the improvements of regional industrial policy instruments, the development and modernization of certain branches of industry (assembly plants, petrochemicals, pharmaceutical, and various raw materials and intermediate goods industries), the provision of advice on industrial programming, the improvement of the Central American Common Market for manufactures, and investment policy in the manufacturing sector.

Efforts to formulate a common agricultural policy have focused in the main on commodities for domestic consumption, and the liberalization of trade and equalization of tariffs in respect of the majority of agricultural commodities Governments and regional authorities will have to take more intensive steps in the next few years to broaden the scope of joint agricultural policy.

(iv) *Development of the infrastructure.* Under the economic integration programme, attention has also been devoted to the preparation of studies for projects and programmes designed to provide the Central American Common Market with an infrastructure. Several years have been spent on research on the formation of an adequate stock of social overhead capital for the region, including the development of a regional road system, the adoption of agreements to regulate motor transport, the establishment of a fund for social infrastructure projects and the establishment of a Central American telecommunications system. The possibility of interconnecting electricity networks has also been explored, water resources are currently being evaluated and port and sea and land transport services are being improved.

In 1969, it is intended to start work on the formulation of a regional investment plan for physical integration. The first step will be an inventory and evaluation of the public investment projects and programmes included in the development plans of each country, and their co-ordination with specific proposals made by the Central American authorities. The groundwork for a study on the development of multinational river basins will be laid, and efforts will be made to secure all the external financing and technical assistance required for projects and programmes in the next few years.

(v) *Customs union.* Several of the component elements of a customs union have already been envisaged in the legal institutional framework of the Central American Common Market.

The activities to be carried out in the near future, in line with the commitments undertaken by the Central American Governments in the General Treaty and in the Declaration of the Presidents of America, will relate to the establishment of a complete customs union and to the free movement of the factors of production.

As regards the trade and fiscal implications of the customs union, 1968 marked the initiation of studies designed to shed some light on the nature and scope of the agreements that might be adopted in the matter, and an evaluation of the economic effects that a more advanced stage of economic integration might have on the area, on the basis of the preliminary studies begun in 1964 in implementation of resolutions adopted by the Central American Economic Co-operation Committee. In these studies account is taken of the guiding principles laid down at several Central American meetings and of the conditions in which the respective public sectors operate in fiscal and balance-of-payments questions. The studies also entail an examination of labour mobilization problems, and of measures to facilitate the launching of programmes for the mobilization of manpower according to each country's growing needs. In this respect, mention must be made of the studies carried out with a view to formulating a Central American migration treaty, and the action taken by university authorities to extend the recognition of professional activities and their exercise throughout the area. Similarly, the free movement of capital has been facilitated, mainly through compensatory payments agreements, and will be intensified once the studies on harmonization of foreign exchange systems, trading association laws, and securities have been completed.

The system of economic integration which Central America is to build up around the concept of a customs union must, in any case, be based on agreements. It should not be forgotten that this is an intermediate stage in the process of integration towards the final attainment of a single economic structure.

(c) *Financial and balance-of-payments questions*

The entry into force in November 1968 of the Protocol to the General Treaty on Central American Economic Integration concerning emergency measures to protect the balance of payments marked the culmination of a lengthy succession of studies, activities and meetings, which began in 1964. The object of the studies was to outline a regional policy on fiscal and balance-of-payments questions, adopt common short-term measures to stabilize the balance of payments, create more favourable conditions for sustained economic development in the area, maintain monetary stability, and consolidate the level of economic integration reached by the Central American countries.

Information on the situation in mid-1968 indicates that it is likely to have improved in 1969—in some countries at least—as a result of the increase in exports in the previous year, and of the application of national measures to reinforce the regional measures adopted in 1968, whose effects should now be discernible.

The Central American integration authorities have agreed on two types of measures—emergency and permanent—to help the countries to deal with their fiscal and balance-of-payments problems. The emergency measures relate to the implementation of provisions contained in the Protocol to the General Agreement, and the permanent measures to various aspects of economic policy approved by the Central American integration agencies.

Special attention has been paid to the financing of regional integration. From the outset, it was considered that Central America should have a financial institution to promote productive and infrastructure projects in the area and to channel the external resources destined for economic integration. The progress in integration made by the Central American Common Market is mainly attributable to internal action and to support in the form of external financial assistance. At present, ways are being sought to increase the volume of external financing, still further diversify the sources of credit, facilitate the securing of loans from international institutions, and stimulate internal organizational action with a view to increasing the area's capacity to absorb external capital.

The Central American Bank for Economic Integration, which began operating in 1961, has administered the Central American Economic Integration Fund since 1966. During the period from the Bank's establishment to November 1968, it increased its resources from 20 to 207.4 million dollars, and in recent years it has diversified its sources of external financing.

In order to implement the recommendations of the American Chiefs of State in 1967, a working group was set up, comprising representatives of the Central American Bank for Economic Integration, the Permanent Secretariat of the General Treaty on Central American Economic Integration, ECLA, the Inter-American Committee on the Alliance for Progress, the Inter-American Development Bank, the International Bank for Reconstruction and Development, and the International Monetary Fund, to identify integration projects, examine the stage of preparation reached, estimate the technical assistance needed to submit the projects to financing agencies, and determine the additional financing required.

The Central American agencies consider that the next stage of the economic integration programme will entail 800 to 1,000 million dollars' worth of external financing and technical assistance merely to cover investment requirements. Accordingly, they are preparing a regional investment programme, and in the meantime have selected four groups of projects which can feasibly be financed.

(d) *Process of convergence between CACM and LAFTA*

Also in accordance with the Action Programme of the American Chiefs of State, the LAFTA/CACM Co-ordinating Committee was established in September 1967, for the purpose of guiding the process of convergence between the two integration movements. At a meeting at San Salvador in July 1968, the Presidents of the Central American countries again pledged support for the forging of increasingly close ties with neighbouring countries and other sub-regional integration movements, and for the process of convergence between CACM and LAFTA.

At the meeting of the Co-ordinating Committee held at Port-of-Spain in September 1968, the Central American countries took the position that until some progress has been made in important aspects of the process of convergence, it would be useful to adopt a clause establishing exceptions for Latin American countries on a temporary and short-term basis, whereby advantages would be extended to them as part of the integration movement, without such advantages being extended to third countries with which agreements containing the most-favoured-nation clause have been signed. In accordance with this procedure, Central America would operate as an economic unit. In the process of convergence it would be necessary to define the special treatment to be given to the economically relatively less developed countries in order to ensure their effective participation.

(e) *Legal status of the multilateral economic integration treaties*

The first multilateral economic integration agreement was signed in 1965. From that year until December 1968 the Central American Common Market approved twenty-nine regional treaties which are deposited with the Organization of Central American States (ODECA). Five of these instruments regulate the free trade area, ten establish the standard customs tariff, six relate to industrial development, one to agricultural development, four to transport and telecommunications, and three to financial questions, the balance of payments and regional institutions.

The experience of the Central American Common Market has shown that it is necessary to shorten the period which the countries have sometimes required to put regional integration agreements into effect. This has been a source of concern to Central American Governments and institutions, and also to private enterprise, particularly during the last two years and they are all obviously anxious to make a concerted effort to put all the agreements concluded thus far into effect. By January 1969 only three of the twenty-nine agreements concluded had not yet entered into force, and the regional agencies are exploring ways of expediting the necessary action in this respect.

4. Recent steps towards multilateral co-operation and economic integration in the Caribbean

The Caribbean Governments, prompted by the desire to raise the living levels of their peoples, are at present trying to reorient their economies by intensifying and liberalizing trade, and adopting policies designed to foster the closer co-ordination of development in the sub-region. The nature of the production process and of trade relations has been determined by historical ties with metropolitan centres, the fact that the countries are isolated from one another, differences in constitutional status and, to some extent, participation in different economic and political groupings. Production and trade are based on a few items—mainly primary commodities—and are characterized by heavy dependence on imports from those same metropolitan centres for production itself and consumption. In addition to their relative isolation, these economies are handicapped by small domestic markets which limit their potential for growth and diversification. Before they can co-operate effectively with one another, their national systems must be restructured as part of a multilateral programme of subregional scope.

The first step towards the formulation of such a programme was taken by the Governments of Antigua, Barbados and Guyana when they adopted the original text of the Agreement for a Caribbean Free Trade Association (CARIFTA) in December 1965. Although this Agreement was not put into effect, it laid the bases for further negotiations aimed at enlarging the membership and scope of the Association. Thus in 1967, a multilateral programme with the following aims was approved:

(*a*) To conduct negotiations for the formation of a free trade area to enter into force on 1 May 1968;

(*b*) To draw up a charter for a regional development bank, to enter into operation on the same date; and

(*c*) To request ECLA to carry out studies and make proposals for furthering the integration process.

After intensive negotiations, the Ministers of Trade approved the revised text of the Agreement of the Association, and the free trade area was brought into operation on 1 May 1968 with four members, Antigua, Barbados, Guyana, and Trinidad and Tobago. By August 1968, Jamaica, the West Indies Associated States—Dominica, Grenada, St. Kitts-Nevis-Anguilla, and St. Lucia—and the colonies of Montserrat and St. Vincent had joined the Association.

(a) *Main features of the co-ordination process in the Caribbean*

(i) *The Caribbean Free Trade Association (CARIFTA).* The cardinal principle of the CARIFTA Agreement is the immediate removal of all barriers to trade in goods originating in the subregion. Therefore, except for the reserved commodities which are governed by transitional arrangements, all tariffs among the member countries were abolished as soon as the Agreement entered into force. As regards the items on the reserve list, customs duties are to be removed over a five-year period by the more developed countries, namely, Barbados, Guyana, Jamaica, and Trinidad and Tobago, and over a ten-year period by the less developed countries—the West Indies Associated States, coupled with Montserrat and St. Vincent.

The primary considerations in compiling the reserve list were to avoid possible dislocations in production in a member country resulting from the abolition of tariffs, and to avoid as far as possible a sudden loss of revenue owing to the abrupt reduction of import duties on goods which had formerly been an important source of fiscal income. By gradually liberalizing trade on these items, it is hoped that the countries will be able to make the necessary adjustments to handle such problems. A longer transition period has been granted to the West Indies Associated States, which have been designated as economically relatively less developed, because of their lower level of economic development, their need for greater protection of existing and potential industries and their inability to withstand a sudden and sharp reduction in revenue from import duties, which in some cases provide as much as 47 per cent of fiscal income.

The products on the reserve list are of particular interest to the West Indies Associated States and fall into two categories. The first comprises three products on which import duties will be lifted immediately by the more developed countries, while the less developed countries will have ten years in which to do so. The second category contains thirteen products on which the duties must also be abolished in ten years by the latter group and in five years by the more developed countries.

In addition, the Agreement provides for special arrangements for phasing out the "effective protective element" in revenue duties. This provision will ensure that similar goods, whether domestically produced or imported from another CARIFTA country, will receive the same tax treatment at the end of the transition period. For these purposes, the "effective protective element" is defined as the difference between the import duty and the excise duty. Products subject to these arrangements are divided into groups, depending on whether the phasing out is to take place within five years for all countries, or whether it is to be achieved over a five-year period by the developed countries and over a ten-year period by the less developed countries. The duties to be eliminated over a five-year period should be reduced annually by 20 per cent commencing on 1 May 1969, but for those to be abolished over a ten-year period, the reduction must be so phased as to total not less than 50 per cent on 1 May 1973 and 100 per cent by 1 May 1978. Moreover, the Agreement forbids the levying of duties on exports between CARIFTA countries, while providing for the Associated States to phase them out over ten years.

In keeping with the principle of rapidly accelerating trade liberalization, the Agreement prohibits quantitative restrictions on trade between CARIFTA countries with specific exceptions. To guard against deflections in trade that might arise because individual countries maintain their own levels of duty against third parties, regulations were established for specifying the origin of goods to qualify for area tariff treatment. The Agreement also contains provisions for the approximation of incentives to industry, and with its entry into force, certain stand-still arrangements began to be applied.

The Agricultural Marketing Protocol to the CARIFTA Agreement requires member countries not to import certain stipulated products from third countries until they have used up the supplies available in the CARIFTA subregion. Underlying this basic principle is the concept that agricultural production should eventually be co-ordinated among the member countries, but until such co-ordination takes place, member countries may develop their domestic agriculture through quantitative restrictions on imports, government subsidies and price supports for farmers. In this respect, too, the Agreement envisages special treatment for the economically relatively less developed countries.

(ii) *The Eastern Caribbean Common Market (ECCM).* The members of CARIFTA have agreed to advance the process of integration by establishing the ECCM to operate within the Association. The Common Market, comprised of the Associated States, came into operation on 15 July 1968.

The primary consideration in formulating these arrangements were to create a common market that would work smoothly within the free trade area, through which the relatively less developed countries could jointly take advantage of the concessions offered to them in CARIFTA; and also to harmonize the approach of the Associated States in the main fields of economic policy, thereby eliminating as far as possible the restrictions which inhibit the movements of production factors between them.

The major principles in the ECCM Agreement are as follows:

(1) The elimination as between participants, of customs duties and quantitative restrictions on the importation and exportation of goods, as well as of all other measures with equivalent effect;

(2) The establishment of a common customs tariff and common trade policies;

(3) The abolition of obstacles to the free movement of services and capital and the phased removal of obstacles to the freedom of movement of persons within the Common Market;

(4) The progressive harmonization of investment and development policies, including industrial development, development planning, and treatment accorded to non-resident business establishments;

(5) The co-ordination of currency and financial policies;

(6) The progressive harmonization of taxation policies and incentive legislation in order to promote the equitable distribution of industries among the Associated States;

(7) A co-operative approach to infrastructural development, especially in the fields of transport and communications;

(8) A common policy for agricultural development.

(iii) *Exclusions and exceptions in the Agreements.* Both the CARIFTA and the ECCM Agreements provide that binding arrangements concluded contractually between members of the private sector and a participating Government prior to the operative date of the trade agreements would be excluded from the trade liberalization measures in the first instance. The products affected would continue to receive the benefits of the contractual arrangements in the individual country concerned. However, the country concerned must report regularly to the Council on the steps being taken to reconcile its contractual obligations with the provisions of the Agreements. Other member countries are empowered not to extend area treatment to such products.

In addition, it is recognized in both Agreements that a country which is faced with balance-of-payments problems or other difficulties in particular sectors may resort to the imposition of quantitative restrictions or generally limit its imports to remedy the situation. The arrangements therefore provide for a member country to limit imports from other participants under such circumstances, after notification to the Council. A similar provision is made for limitation of imports from other member countries during the first five years of operation of the Agreements if difficulties in particular sectors are adversely affecting demand and employment.

(b) *Present situation: problems and obstacles*

The implementation of these new arrangements under the CARIFTA and ECCM Agreements brought into focus a range of problems relating to the supervision of trade and the administration of the various provisions. A general major problem has been that of arriving at a measure of uniformity for the treatment of CARIFTA goods in both customs regulations and procedures. In a few cases there have been specific problems of interpretation of some provisions in the CARIFTA Agreement, and this has necessitated re-examination of the text by the Council and the Governments, chiefly the provisions relating to the origin of goods, breaches of the arrangements, treatment for marine products, etc.

The Council of CARIFTA has accordingly established a secretariat in Guyana. Supervision of the ECCM Agreement has been entrusted to the existing intergovernmental secretariat serving the Associated (West Indies) States.

Trade in agricultural commodities raises special problems relating to subregional import substitution policy, the lack of information, and the need to encourage national specialization so that each country can fully exploit its possibilities of producing the items in which it has a comparative advantage. Another problem is the establishment of an area price for each commodity as required by the Agricultural Marketing Protocol.

While unusually rapid progress has been made in forming CARIFTA and the ECCM, the establishment of the Caribbean Development Bank, the draft charter of which is still awaiting the approval of the Ministers of Finance, has advanced very little.

(c) *The prospects for evolution*

The recommendations made to the Governments on the subject of closer economic co-operation and the decisions that were subsequently taken imply that creation of the free trade area is regarded as the initial step in a wider programme of multilateral economic co-operation. The decisions included the authorization of studies of other measures that might be implemented to further the integration process. Among these, the CARIFTA member Governments allocated high priority to the preparation of a common external tariff.

Clearly, the Governments envisaged the possibility that the process would not necessarily be limited to trade but would be extended to production as well. CARIFTA already has provisions that will not become operational until agricultural production has been co-ordinated among the member countries. Moreover, the Governments set forth the principle that certain industries may require for their economic viability the whole or a large part of the entire subregional market under the protection of a common external tariff or other suitable instrument. Accordingly, they authorized the implementation of studies to formulate criteria for application to such industries and their location, with special regard to the situation of the relatively less developed countries. These additional steps are to be supplemented by the harmonization of incentives for industry.

(d) *CARIFTA and a wider Latin America*

When concluding the arrangements for the Free Trade Association the CARIFTA Governments were conscious of the need to develop a higher level of co-operation throughout the whole Caribbean subregion, and therefore made provision for the accession of other countries to the Agreement. Some members have evinced a keen desire for CARIFTA to be associated with the process of convergence initiated between LAFTA and the CACM and, if and when appropriate, with the subregional integration agreement of the countries of the Andean Group.

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